



U.S. Department  
of Transportation

National Highway  
Traffic Safety  
Administration



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DOT HS 807 002  
Test Report

June 1985

## Side Impact Protection in Production Vehicles

### MDB-to-Car Side Impact Test of a 26° Crabbed Moving Deformable Barrier to a 1982 Nissan Sentra at 33.4 mph

The United States Government does not endorse products or manufacturers. Trade or manufacturers' names appear only because they are considered essential to the object of this report.

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Technical Report Documentation Page

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15. Supplementary Notes This test conducted as part of VRTC Project No. SRL 103 Side Impact Protection In Production Vehicles			
16. Abstract <p>This test report documents one of a series of ten crash tests to evaluate side impact protection in various vehicle models. Testing was conducted on a 1982 Nissan Sentra 2-door Sedan at the TRCO Crash Test Facility, East Liberty, Ohio. The test vehicle was impacted on the left side by a moving deformable barrier, crabbled to 26°, at 33.4 mph. The test was a simulation of a 90° intersection collision with the striking vehicle travelling at 30 mph and the struck vehicle travelling at 15 mph. Occupant responses of two side impact dummies were measured. One dummy was located in the driver's designated seating position and one was located in the left rear seating position. The test date was April 30, 1985 and the ambient temperature was 72°F.</p>			
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SECTION 1.0  
PURPOSE AND INTRODUCTION

PURPOSE

The main purpose of this test was to evaluate side impact protection in one of a fleet of 2-door and 4-door vehicles. The vehicle was tested using conditions not currently contained in a Federal Motor Vehicle Safety Standard.

INTRODUCTION

A stationary 1982 Nissan Sentra 2-door sedan was impacted on the left side by a Moving Deformable Barrier (MDB) on April 30, 1985. The test was to simulate an intersection collision with the striking vehicle travelling at 30 mph and the struck vehicle travelling at 15 mph. The orientation angle of the striking vehicle was 90° counterclockwise with respect to the longitudinal axis of the struck vehicle. The leading edge of contact was to be 37 inches forward of the vehicle center of gravity which is defined by accident investigation to be the midpoint of the wheelbase.

To simulate this collision, the MDB was to be towed into the stationary Nissan Sentra at 33.5 mph with the MDB's wheels crabbed clockwise to 26°. The actual test speed was 33.4 mph and the actual leading edge of contact was 37.0 inches forward of the midpoint of the Nissan Sentra's wheelbase.

The vehicle was a baseline model with no structural modification. The driver door and left rear door were unpadded.

Section 2 contains General Test and Vehicle Parameter Data. Section 3 contains data required by R & D. Appendix A contains pre-test and post-test vehicle and dummy photographs. Appendix B contains Data Plots. Appendix C contains Dummy Certification Data.



SECTION 2.0  
GENERAL TEST AND VEHICLE PARAMETER DATA

The following data sheets describe the General Test and Vehicle Parameter Data.

TEST VEHICLE INFORMATION

VEHICLE MANUFACTURER: Nissan Motor Company

MAKE/MODEL: Nissan Sentra

VIN: JN1HB125XCU033878

BODY STYLE: 2-Door Sedan

MODEL YEAR: 1982

NHTSA NO.: R & D

COLOR: Silver

ENGINE DATA: TYPE: Transverse CYLINDERS: 4 DISPLACEMENT 90.8 CID

TRANSMISSION DATA: 5 Speed Manual

DATE VEHICLE RECEIVED: 4/23/85

ODOMETER READING: 47252

DEALER'S NAME AND ADDRESS: NA

ACCESSORIES:

POWER STEERING	No	AUTOMATIC TRANSMISSION	No
POWER BRAKES	Yes	AUTOMATIC SPEED CONTROL	No
POWER SEATS	No	TLITING STEERING WHEEL	No
POWER WINDOWS	No	TELESCOPING STEERING WHEEL	No
TINTED GLASS	No	AIR CONDITIONING	No
RADIO	Yes	ANTI-SKID BRAKE	No
CLOCK	No	REAR WINDOW DEFROSTER	Yes
OTHER			

REMARKS:

1. IS THE VEHICLE STOCK THROUGHOUT? Yes
2. DOES VEHICLE SHOW EVIDENCE OF PRIOR ACCIDENT HISTORY? Yes\*
3. DOES VEHICLE SHOW ANY SIGNIFICANT CORROSION? No
4. CONDITION OF THE FRONT/REAR BUMPER AND FRAME: Good

DATA FROM CERTIFICATION LABEL ON LEFT DOOR FACE OR "B" POST:

VEHICLE MANUFACTURED BY: Nissan Motor Company

DATE OF MANUFACTURE: 7/82

GVWR: 2875 LBS.,

GAWR: FRONT 1420 LBS., REAR 1465 LBS.

\*Minor dents on left rear and left front fenders and trunk lid.

VEHICLE TIRE DATA

RECOMMENDED COLD TIRE PRESSURE: FRONT 24 psi; REAR 26 psi

TIRES ON VEHICLE (MFGR. & LINE, SIZE): Continental 155 SR 13

BIAS PLY, BELTED, OR RADIAL: Steel Belted Radial

PLY RATING: 3

IS SPARE TIRE "SPACE SAVER"? No

IS SPARE TIRE STANDARD EQUIPMENT? DNA

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (WITH MAXIMUM FLUIDS):

RIGHT FRONT	590	LBS.	RIGHT REAR	392	LBS.
LEFT FRONT	588	LBS.	LEFT REAR	373	LBS.
TOTAL FRONT WEIGHT	1178	LBS.	(60.6 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	765	LBS.	(39.4 % OF TOTAL VEHICLE WEIGHT)		
TOTAL DELIVERED WEIGHT	1943	LBS.			

VEHICLE ATTITUDE (ALL DIMENSIONS IN INCHES):

DELIVERED ATTITUDE:	RF 25 1/2	;LF 25 3/4	;RR 24 1/4	;LR 24
PRE-TEST ATTITUDE:	RF 25 5/16	;LF 25 5/16	;RR 22 11/16	;LR 22 1/2
POST-TEST ATTITUDE:	RF 23 1/4	;LF 22 1/4	;RR 20 3/8	;LR 21

WEIGHT OF TEST VEHICLE WITH REQUIRED DUMMIES AND 86 LBS. CARGO:

RIGHT FRONT	610	LBS.	RIGHT REAR	569	LBS.
LEFT FRONT	639	LBS.	LEFT REAR	559	LBS.
TOTAL FRONT WEIGHT	1249	LBS.	(52.5 % OF TOTAL VEHICLE WEIGHT)		
TOTAL REAR WEIGHT	1128	LBS.	(47.5 % OF TOTAL VEHICLE WEIGHT)		
TOTAL TEST WEIGHT	2377	LBS.			
WEIGHT OF BALLAST SECURED IN VEHICLE TRUNK AREA:		0			LBS.

TEST FLUID DATA

TEST FLUID TYPE: RED STODDARD SOLVENT 2; SPEC. GRAVITY: 0.764

KINEMATIC VISCOSITY: 0.99 CENTISTOKES

"USEABLE" CAPACITY\*: NA GALLONS ACTUAL

TEST VOLUME: 2.0 GALLONS

FUEL SYSTEM CAPACITY (DATA FROM OWNERS MANUAL): NA GALLONS

DETAILS OF FUEL SYSTEM: DNA

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ELECTRIC FUEL PUMP: Yes FUEL INJECTION: No

DOES ELECTRIC FUEL PUMP OPERATE WITH IGNITION SWITCH "ON" AND THE ENGINE NOT OPERATING? Yes

DATA FROM "RECOMMENDED TIRE PRESSURE" LABEL ON DOOR, POST, GLOVEBOX, ETC.

VEHICLE LOAD (UP TO CAPACITY): FRONT 24 psi; REAR 24 psi

RECOMMENDED TIRE SIZE: 155 SR 13 LOAD RANGE X B, C,

VEHICLE CAPACITY: TYPES OF SEATS: Front - Bucket  
Rear - Bench

NUMBER OF OCCUPANTS (DESIGNATED SEATING CAPACITY): 2 FRONT

3 REAR

CARGO LOAD 75 LBS. 5 TOTAL

TOTAL 825 LBS.

\*WITH ENTIRE FUEL SYSTEM FILLED WITH FUEL TANK THROUGH CARBURETOR BOWL.

TEST CONDITIONS

TEST NUMBER: 850430

DATE OF TEST: April 30, 1985

TIME OF TEST: 12:09

WIND VELOCITY: 0-3 mph 130° ESE

HUMIDITY: NA

AMBIENT TEMPERATURE AT IMPACT AREA: 72° F

TEMPERATURE IN OCCUPANT COMPARTMENT: 78° F

SUBJECT VEHICLE DATA

	<u>ACTUAL</u>	<u>INTENDED</u>
VEHICLE TEST WEIGHT (LBS.)	2377	2366
MDB TEST WEIGHT (LBS.)	2983	3000
MDB VELOCITY (MPH)*	33.4	33.5
IMPACT POINT (INCHES)**	37.0	37

DUMMIES

	<u>DRIVER</u>	<u>MIDDLE PASSENGER</u>	<u>RT. FRONT PASSENGER</u>	<u>LEFT REAR PASSENGER</u>	<u>RT. REAR PASSENGER</u>
TYPE:	SID			SID	
SERIAL NO.:	123			U02	
INSTRUMENTATION:					
HEAD ACCEL.:	Yes			Yes	
CHEST ACCEL.:	Yes (Upper/Lower)			Yes (Upper/Lower)	
FEMUR L.C.'S:	No			No	
OTHER:	Pelvis/Ribs			Pelvis/Ribs	

RESTRAINT SYSTEM: Both dummies were unrestrained

\* As measured over final one foot of travel.

\*\* As measured forward of the midpoint of the test vehicle's wheelbase.

VISIBLE DUMMY CONTACT POINTS:

	DRIVER 123	PASSENGER U02
Head	Moving Barrier Face <u>Side Window Sill, Roof</u>	<u>Left C-Pillar, Backlight</u>
Chest	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Abdomen	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Left Knee	<u>Driver's Door Panel</u>	<u>Left Rear Side Wall</u>
Right Knee	<u>Left Knee</u>	<u>Left Knee</u>

DOOR OPENING:

	LEFT	RIGHT
Front	NA*	Easy
Rear	DNA	DNA

SEAT MOVEMENT:

	SEAT BACK FAILURE	SEAT SHIFT
Front	No	No
Rear	No	No

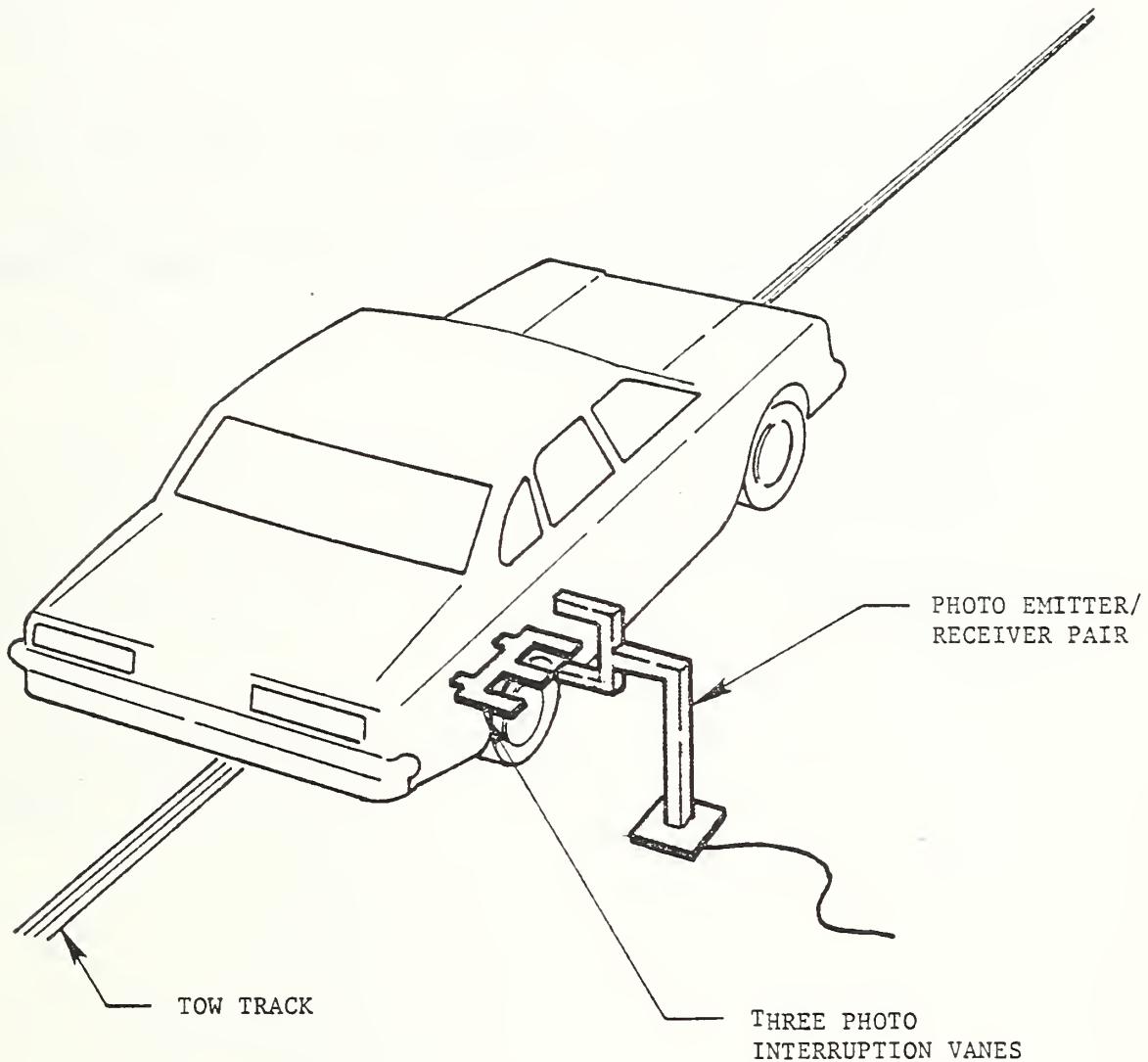
GLAZING DAMAGE: Left side of windshield cracked; all left side windows shattered; no backlight damage.

OTHER NOTABLE IMPACT EFFECTS:

Left side instrument panel separated. Driver dummy came to rest with buttocks sitting on front passenger side window sill.

\*CTM to open left side doors at a later date.

IMPACT VELOCITY MEASUREMENT SYSTEM



The final vane clears emitter/receiver two inches before impact.

The vanes have one foot spacing.

VEHICLE TEST WEIGHT CALCULATION

Test Weight = Unloaded Delivered Weight +  
Number of Dummies X 174 lbs. +  
Cargo Weight  
= 1943 + 2 X 174 + 75 lbs.  
= 2366 lbs.

To achieve test weight, the exhaust system, battery, rear bumper, alternator, radiator and overflow tank, distributor and master cylinder were removed and 2.0 gallons of Stoddard Solvent were added in the fuel tank. The weight of the test vehicle was measured by placing each wheel on a KJ Law Force Plate.

## TEST ANOMALIES

Cable separation occurred in the following dummy data channels:

T12YG1 - Driver Lower Spine Acceleration Y axis

LURYGA - Driver Left Upper Rib Acceleration Y axis

No peak levels, resultants or delta velocities are reported. No resultant or delta velocity plots are included.

Cable separation occurred in the following vehicle data channels:

LFDYG3 - Vehicle Left Front Door (Position 9) Acceleration Y axis

VCGV - Vehicle Yaw Rate

No delta velocity plot for LFDYG3 is included.

Data channel LFSYG - Vehicle Left Front Sill Acceleration Y axis failed prior to test. No data was acquired from this channel and no plot is included in this test report. No delta velocity was calculated. This particular accelerometer failed in a previous test and will be removed from service.

High speed camera number 6 (Ground Level - Left) failed to operate. The failure was traced to wearing in the take-up clutch and has since been repaired.



SECTION 3.0  
DATA REQUIRED BY R&D

The following pages are included in this section:

1. Dummy temperature control and positioning data
2. Dummy kinematic summary
3. Vehicle crush data
4. Dummy and vehicle accelerometer location and data summary
5. High speed camera information
6. Transducer information

#### DUMMY TEMPERATURE CONTROL AND POSITIONING

The vehicle was kept inside the temperature controlled crash test building until approximately 2 hours prior to the test. Temperature inside the vehicle and ambient temperature at the crash area were recorded. Dummy temperature while outside the crash test building was maintained portably until approximately 1 minute prior to the test.

The following table summarizes the steps taken to position the instrumented, calibrated dummies in the test vehicle.

### DUMMY PLACEMENT AND POSITIONING

<u>SIDE IMPACT DUMMY</u>	<u>DRIVER DSP</u>	<u>REAR PASSENGER DSP</u>
HEAD	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.	Surface of transverse instrument mounting platform is as horizontal as possible without inducing torso movement & midsagittal plane falls in longitudinal plane.
UPPER TORSO	Placed against seat back. Midsagittal plane is vertical and centered on bucket seat.	Placed against seat back. Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
LOWER TORSO	Midsagittal plane is vertical and centered on bucket seat.	Midsagittal plane is vertical and contained in the same longitudinal plane as the driver's midsagittal plane.
UPPER LEGS (thighs or femurs)	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.	Placed against seat cushion. Planes defined by femur and tibia centerlines are as close as possible to vertical.
KNEES	Knees set 14.5" apart between pivot bolt head outer surfaces. Outer surface of right knee pivot bolt is 8.6" from midsagittal plane of dummy. Outer surface of left knee pivot bolt is 5.9" from midsagittal plane of dummy.	Located so that planes defined by femur and tibia centerlines are as close as possible to vertical.
LOWER LEGS	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.	Plane defined by femur and tibia centerlines are as close as possible to vertical longitudinal plane.
RIGHT FOOT	Placed on undepressed accelerator pedal -- rearmost point of heel on floorpan in plane of pedal.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.
LEFT FOOT	Placed on toeboard -- rearmost point of heel on floorpan as close as possible to intersection of toeboard and floorpan. Centerline falls in vertical longitudinal plane.	Centerline falls in vertical longitudinal plane. Placed on floor as far forward as possible without front seat interference.

\*NOTE: THE SIDE IMPACT DUMMY DOES NOT INCLUDE ARMS.

DUMMY IN-VEHICLE POSITION RECORDING SHEET

VEHICLE NHTSA NO. R & D

FRONT SEAT TYPE: BENCH  
 BUCKET  
SPLIT BENCH

BUCKET SEAT BACK TYPE: X FIXED  
ADJUSTABLE

POSITIONING DATE: April 30, 1985

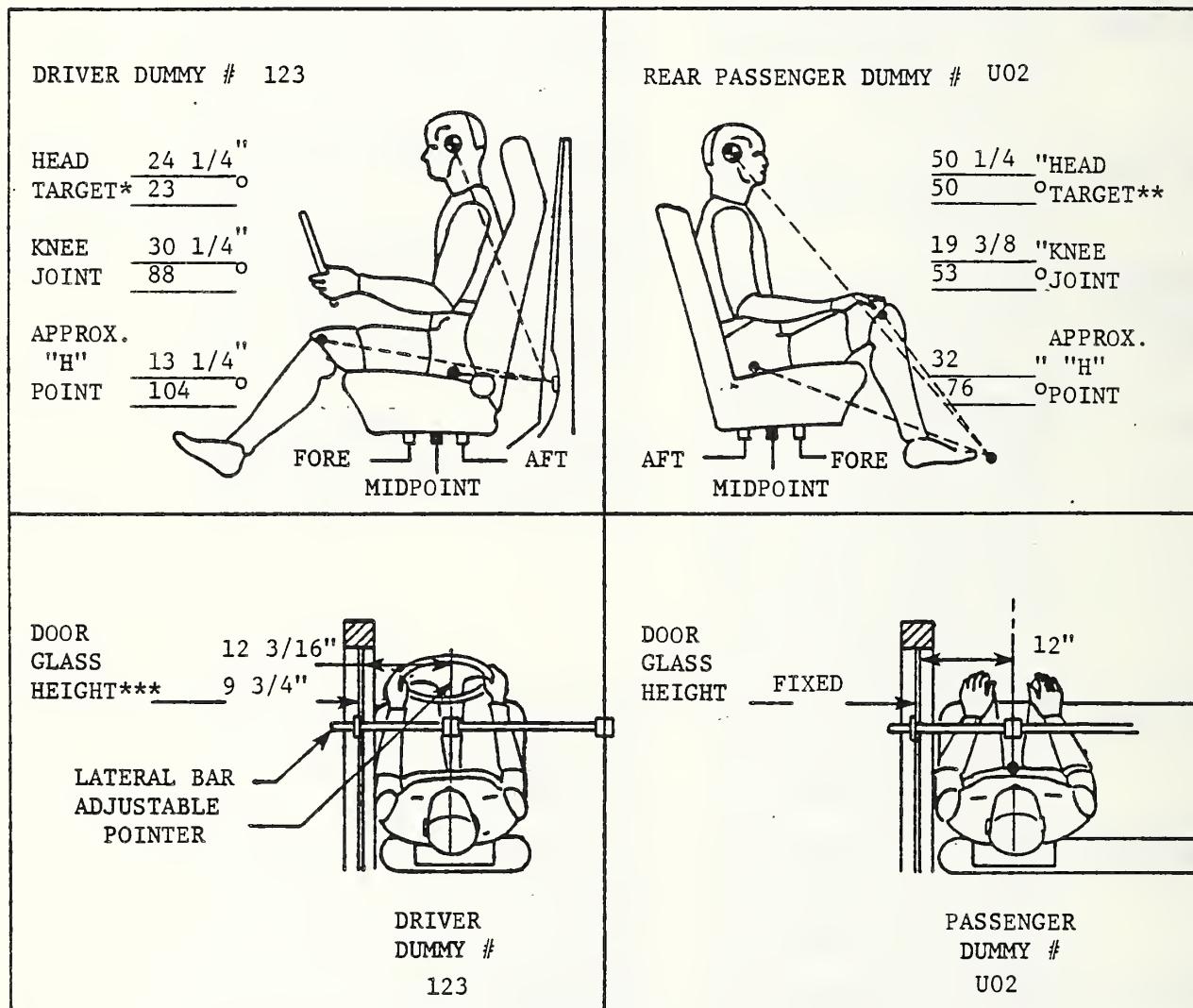
AMBIENT TEMP.: 72° F. TIME: 8:00

MFR./MAKE/MODEL: Nissan Sentra

ADJUSTER TYPE: X MANUAL  
POWER

TECHNICIANS:

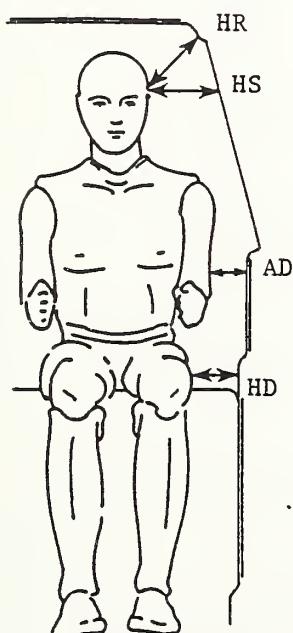
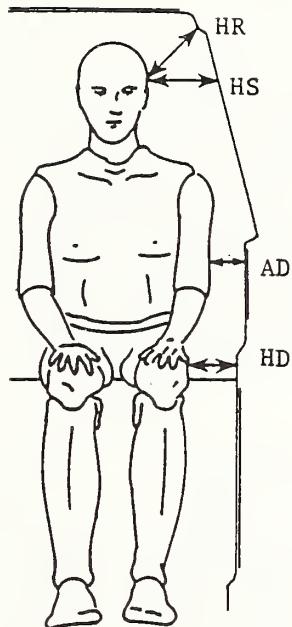
1. B. Fishbaugh
2. R. Benavides
3. D. Carpenter



\*All driver dummy dimensions referenced to top of striker bolt and all angles referenced to vertical.

\*\*All passenger dummy dimensions referenced to front seat back latch bolt with front seat in mid-position and all angles referenced to vertical.

\*\*\*Door glass height is equal on the right and left side of vehicle at dummy nose level.



DRIVER

123

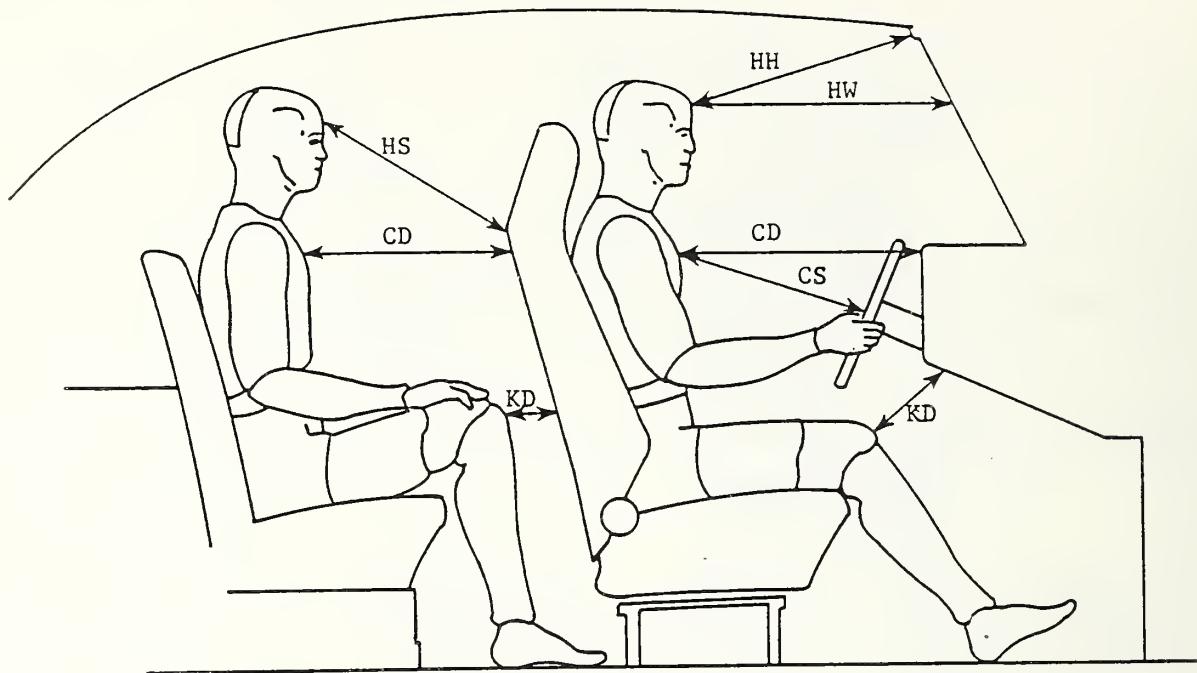
PASSENGER

U02

	DRIVER	PASSENGER
HR	7	7 1/16
HS	8 7/8	8 15/16
AD	3 13/16	3 5/8
HD	6 5/8	6

ALL MEASUREMENTS IN INCHES

DUMMY LATERAL CLEARANCE DIMENSIONS



**DRIVER**                    **PASSENGER**

123

U02

HH	19 5/8	DNA
HW	18 1/16	DNA
HS	DNA	25 3/4
CD	19 5/8	19 5/8
CS	11 3/4	DNA
KDL	5 5/8	4 7/8
KDR	5 7/16	5 1/4

ALL MEASUREMENTS IN INCHES

## DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

## DUMMY KINEMATIC SUMMARY

### DRIVER

During impact, the dummy's torso contacted the driver's door and the head contacted the moving deformable barrier top and the side window sill. The dummy rebounded laterally across the front occupant compartment. The buttocks passed through the right front side window as the rear of the dummy's head struck the roof. The dummy came to rest seated on the right front side window sill with its head lodged between the front seat head restraints.

### PASSENGER

During impact, the dummy's torso contacted the left rear side wall and the head contacted the left C-pillar and the backlight. The dummy rebounded laterally across the rear occupant compartment and fell over onto its right side. The head struck the right rear side wall. The dummy came to rest laying across the rear seat on its right side.

VEHICLE EXTERIOR PROFILES AND STATIC CRUSH  
ZERO DISTANCE AT PROJECTED IMPACT POINT\*

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78
PRE-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																
Axle Height	10.8	X	X	18.5	18.5	18.4	18.4	18.4	18.5	18.4	18.8	18.8	18.9	X	X	X
H-Point	20.0	X	X	16.6	16.5	16.5	16.4	16.4	16.4	16.4	16.4	16.5	16.5	16.5	16.3	X
Mid Door	23.5	X	16.8	16.6	16.5	16.4	16.4	16.3	16.3	16.3	16.4	16.4	16.4	16.5	16.5	X
Window Sill	35.0	19.8	19.6	19.3	19.3	19.3	19.3	19.1	19.0	18.9	18.8	18.6	18.8	18.8	18.8	18.8
Window Top	52.3	X	X	X	X	X	X	X	27.5	27.4	27.4	27.5	27.5	27.1	28.3	X

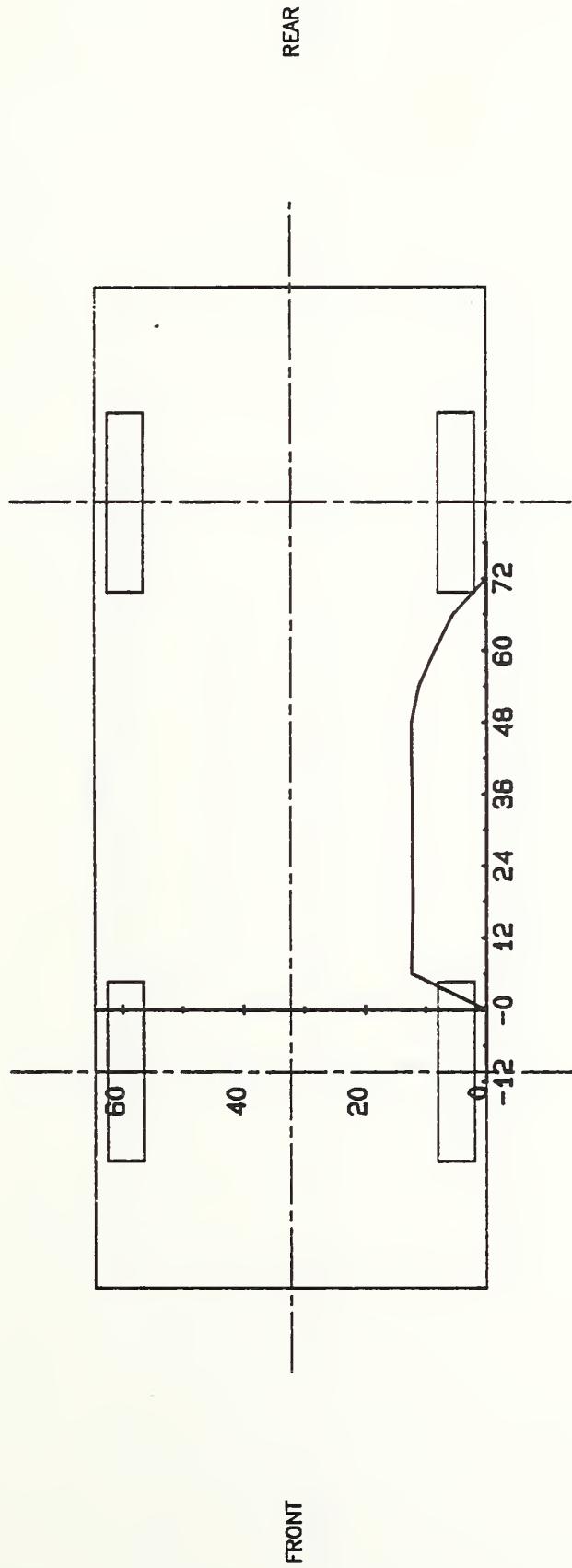
POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE\*\*)

LOCATION	HEIGHT (in)	6	0	6	12	18	24	30	36	42	48	54	60	66	72	78	
POST-TEST PROFILE (DISTANCE IN INCHES FROM REFERENCE PLANE**)																	
Axle Height	10.8	X	X	30.9	30.8	30.5	30.5	30.6	30.6	30.6	30.9	30.8	29.9	27.3	24.4	X	X
H-Point	20.0	X	X	31.6	34.4	34.6	34.6	34.8	34.8	35.0	35.0	34.8	34.5	33.5	31.1	27.6	X
Mid Door	23.5	X	26.0	30.3	31.8	32.2	32.3	32.9	33.6	33.6	33.5	33.8	34.1	34.1	32.4	27.8	X
Window Sill	35.0	22.5	23.0	25.1	28.8	30.8	30.5	30.5	30.1	30.0	30.3	31.0	32.0	33.3	31.9	28.1	24.5
Window Top	52.3	X	X	X	X	X	X	X	30.8	30.8	30.9	31.0	31.0	30.5	30.3	30.0	X
STATIC CRUSH (IN)																	
Axle Height	10.8	X	X	12.4	12.3	12.1	12.2	12.2	12.4	12.4	11.1	8.5	5.5	X	X	X	
H-Point	20.0	X	X	15.0	17.9	18.1	18.4	18.4	18.6	18.6	18.4	18.1	17.0	14.6	11.3	X	
Mid Door	23.5	X	9.2	13.7	15.3	15.8	15.9	16.6	17.3	17.2	17.4	17.7	17.7	15.9	11.3	X	
Window Sill	35.0	2.7	3.4	5.8	9.5	11.5	11.2	11.0	11.0	11.4	12.2	13.4	14.5	13.1	9.3	5.7	
Window Top	52.3	X	X	X	X	X	X	3.3	3.4	3.5	3.5	3.5	2.7	3.2	1.7	X	

\* Projected impact point is 37 inches forward of driver's side wheelbase midpoint. Column readings are front to rear from left to right.

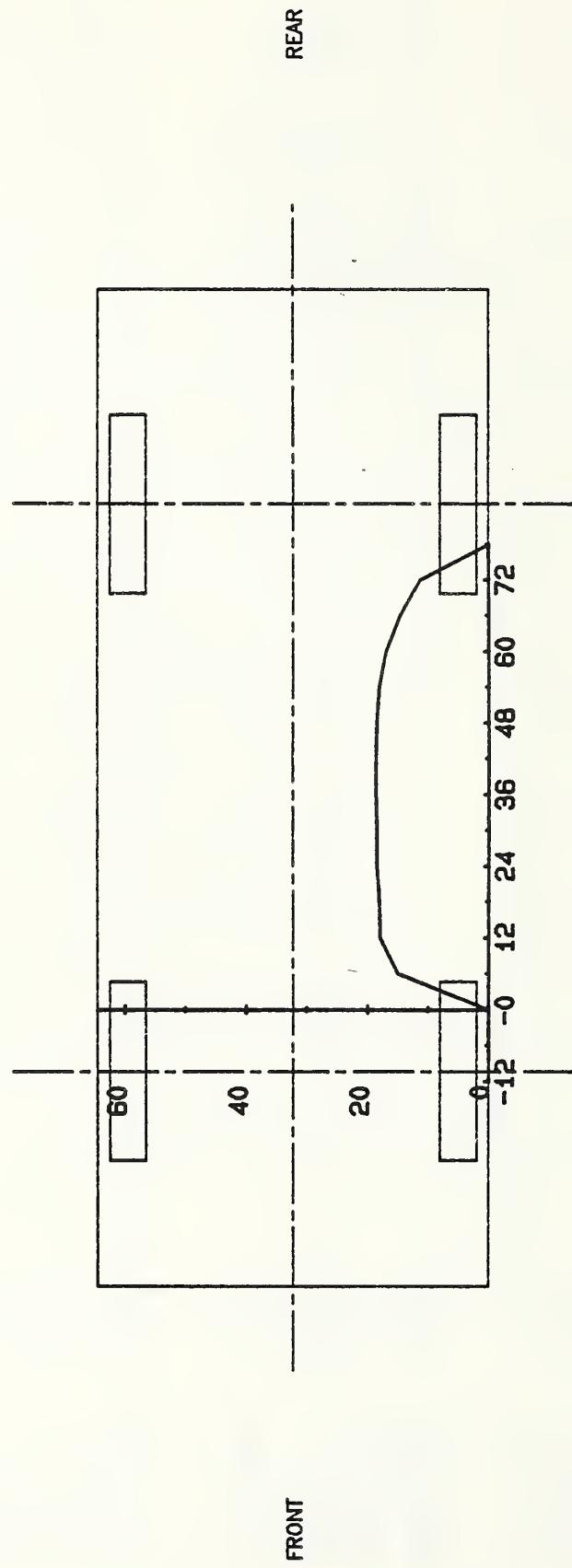
\*\* Reference plane is parallel to and 48 inches from the vehicle longitudinal centerline.

## VEHICLE EXTERIOR STATIC CRUSH PROFILE



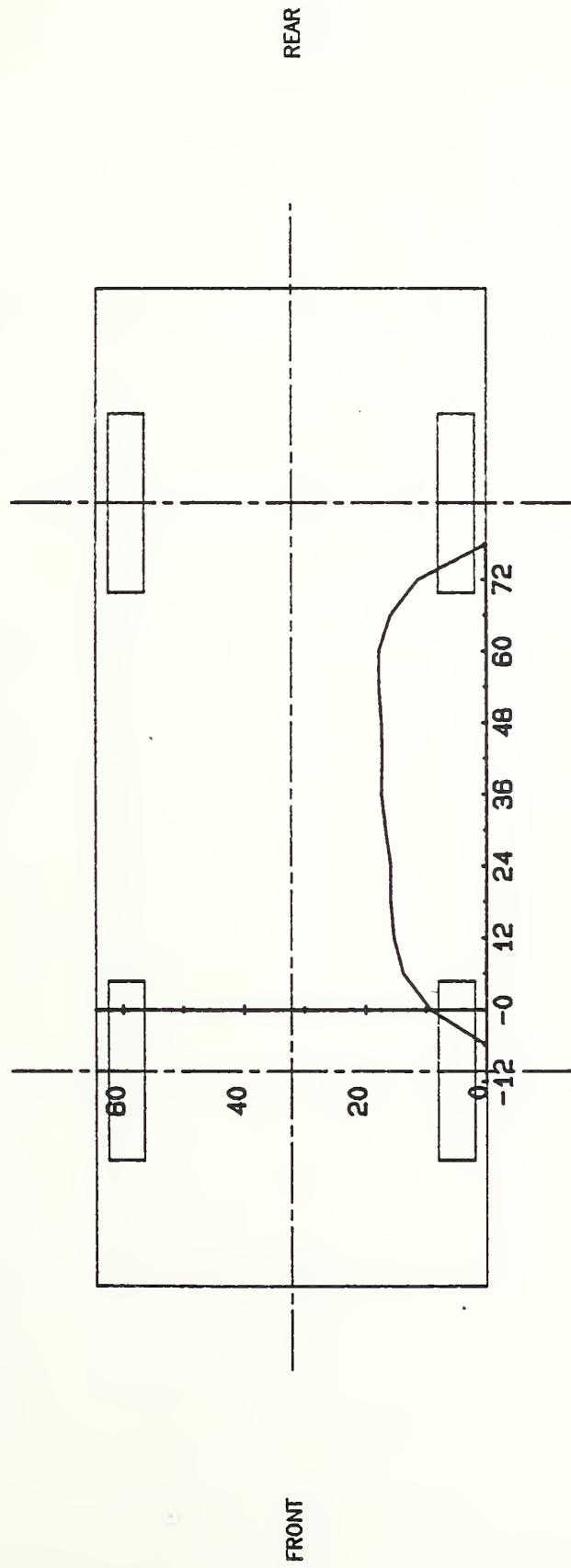
PROFILE LEVEL EQUALS AXLE HEIGHT  
(0,0) EQUALS PROJECTED IMPACT POINT  
SCALE FACTOR EQUALS 0.036

VEHICLE EXTERIOR STATIC CRUSH PROFILE



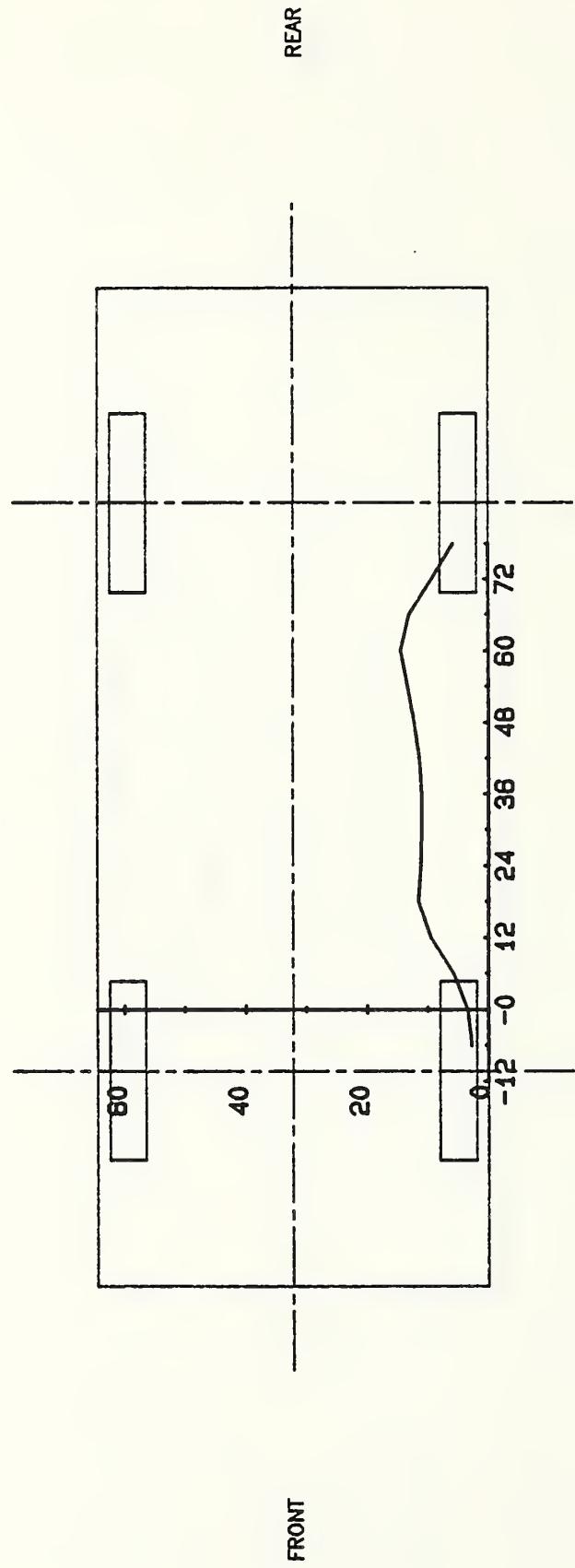
PROFILE LEVEL EQUALS H-POINT HEIGHT  
(0,0) EQUALS PROJECTED IMPACT POINT  
SCALE FACTOR EQUALS 0.036

VEHICLE EXTERIOR STATIC CRUSH PROFILE



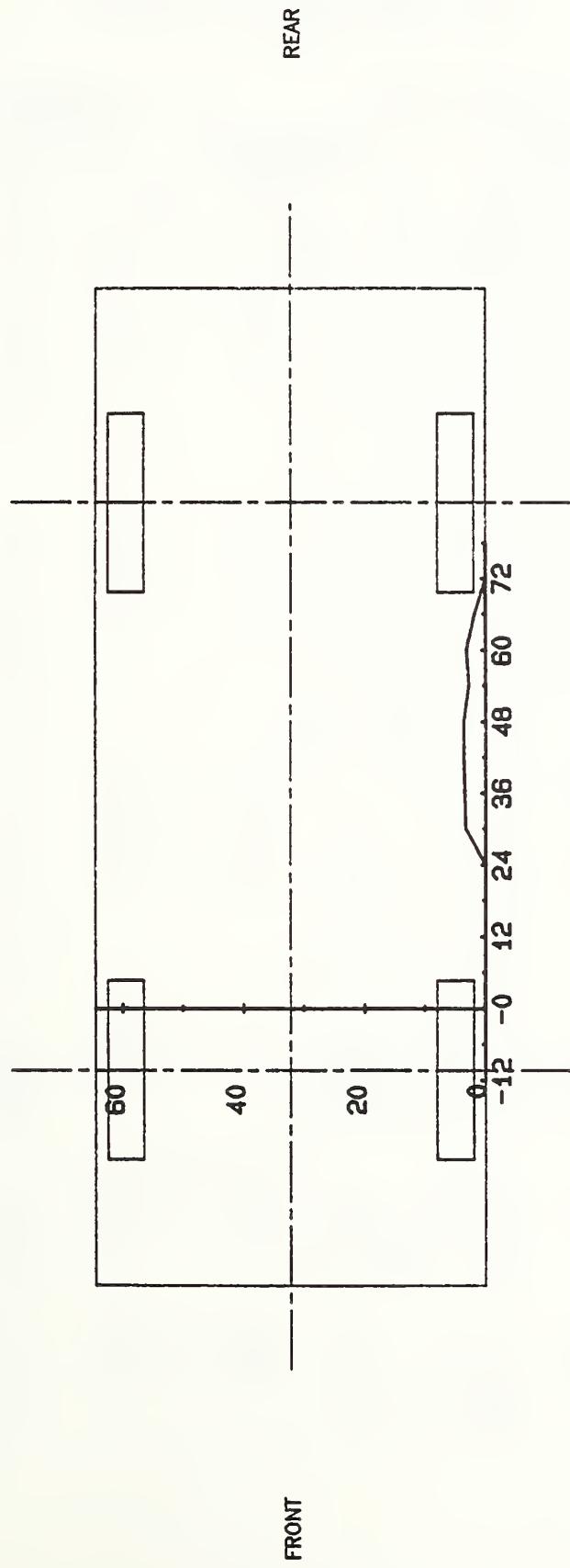
PROFILE LEVEL EQUALS MID DOOR HEIGHT  
(0,0) EQUALS PROJECTED IMPACT POINT  
SCALE FACTOR EQUALS 0.036

## VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW SILL HEIGHT  
(0,0) EQUALS PROJECTED IMPACT POINT  
SCALE FACTOR EQUALS 0.036

VEHICLE EXTERIOR STATIC CRUSH PROFILE



PROFILE LEVEL EQUALS WINDOW TOP HEIGHT  
(0,0) EQUALS PROJECTED IMPACT POINT  
SCALE FACTOR EQUALS 0.036

SIDE IMPACT DUMMY DATA SUMMARY

	DRIVER DUMMY				PASSENGER DUMMY							
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**					
	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)	MAX (g)	TIME (msec)				
<b>HEAD ACCELERATION</b>												
LONGITUDINAL	9.94	60.50	82.09	78.88	9.42	40.25	33.20	55.88				
LATERAL	89.62	78.13	37.63	59.63	135.23	58.00	13.98	42.00				
VERTICAL	63.70	45.63	87.66	58.38	40.56	63.38	26.80	43.25				
RESULTANT		121.85 @ 79.00				141.09 @ 58.13						
HIC	1209.01	from 43.50 to 82.38		1238.54	from 54.38 to 62.13							
<b>CHEST ACCELERATION</b>												
<b>UPPER SPINE</b>												
LONGITUDINAL	21.97	40.88	25.59	37.50	14.51	76.88	24.90	66.87				
LATERAL (P)***	148.45	38.75	46.87	63.75	74.81	48.13	18.35	65.00				
LATERAL (R)***	154.40	38.75	46.76	63.75	76.10	48.13	17.73	65.00				
VERTICAL	12.90	55.63	35.95	28.13	11.07	31.88	22.95	48.13				
RESULTANT (P)		149.98 @ 38.75				81.72 @ 48.13						
RESULTANT (R)		155.87 @ 38.75				82.91 @ 48.13						
DELTA V (MPH)****		29.9 @ 58.75 (P)				21.4 @ 111.88 (P)						
		31.9 @ 58.75 (R)				22.2 @ 112.50 (R)						
<b>LOWER SPINE</b>												
LONGITUDINAL	43.47	51.88	23.47	64.38	19.90	58.75	21.07	65.63				
LATERAL (P)	---	---	---	---	57.62	40.00	22.74	65.63				
LATERAL (R)	115.73	30.62	23.49	55.63	57.55	40.00	23.56	65.63				
VERTICAL	36.93	34.38	25.48	27.50	14.48	42.50	12.88	69.38				
RESULTANT (P)		---	---	---		59.63 @ 40.63						
RESULTANT (R)		116.11 @ 30.62				59.71 @ 40.63						
DELTA V (MPH)		---	---	(P) Y		24.7 @ 61.25 (P)						
		34.1 @ 52.50 (R)				24.6 @ 60.62 (R)						
<b>LEFT UPPER RIB</b>												
LATERAL (P)	104.32	36.88	9.75	83.75	91.02	41.25	4.72	116.98				
LATERAL (R)	---	---	---	---	90.78	41.25	8.18	73.75				
DELTA V (MPH)		32.6 @ 80.00 (P)				24.0 @ 98.75 (P)						
		---	---	(R) Y		25.2 @ 99.37 (R)						
<b>LEFT LOWER RIB</b>												
LATERAL (P)	107.94	32.50	16.94	68.13	103.07	40.63	38.59	69.38				
LATERAL (R)	129.79	34.38	18.90	68.13	98.68	40.63	36.91	70.00				
DELTA V (MPH)		26.7 @ 82.50 (P)				26.2 @ 67.50 (P)						
		32.2 @ 103.10 (R)				26.3 @ 67.50 (R)						
<b>PELVIS ACCELERATION</b>												
LONGITUDINAL	6.63	42.88	39.02	36.38	13.55	67.38	85.18	35.13				
LATERAL	239.91	27.75	27.25	39.25	155.42	34.13	14.12	24.00				
VERTICAL	28.38	29.00	19.61	26.88	51.22	38.88	12.63	72.75				
RESULTANT		239.91 @ 27.75				170.02 @ 34.88						
DELTA V (MPH)		31.3 @ 79.38				23.9 @ 51.00						

SIDE IMPACT DUMMY DATA SUMMARY CONTD

	DRIVER DUMMY				PASSENGER DUMMY			
	POSITIVE DIRECTION*		NEGATIVE DIRECTION**		POSITIVE DIRECTION*		NEGATIVE DIRECTION**	
	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)	MAX (in)	TIME (msec)
RIB DEFLECTION +	1.45	93.13	0.06	330.75	1.78	64.75	0.02	1.38

\* LONGITUDINAL: FORWARD  
LATERAL: RIGHTWARD  
VERTICAL: UPWARD

\*\*LONGITUDINAL: REARWARD  
LATERAL: LEFTWARD  
VERTICAL: DOWNWARD

\*\*\* (P) = Primary Sensor, (R) = Redundant Sensor

\*\*\*\* For dummy channels, Delta V is the velocity change at the approximate time of separation from the contact area.

+ Compression: Positive

Y See TEST ANOMALIES

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

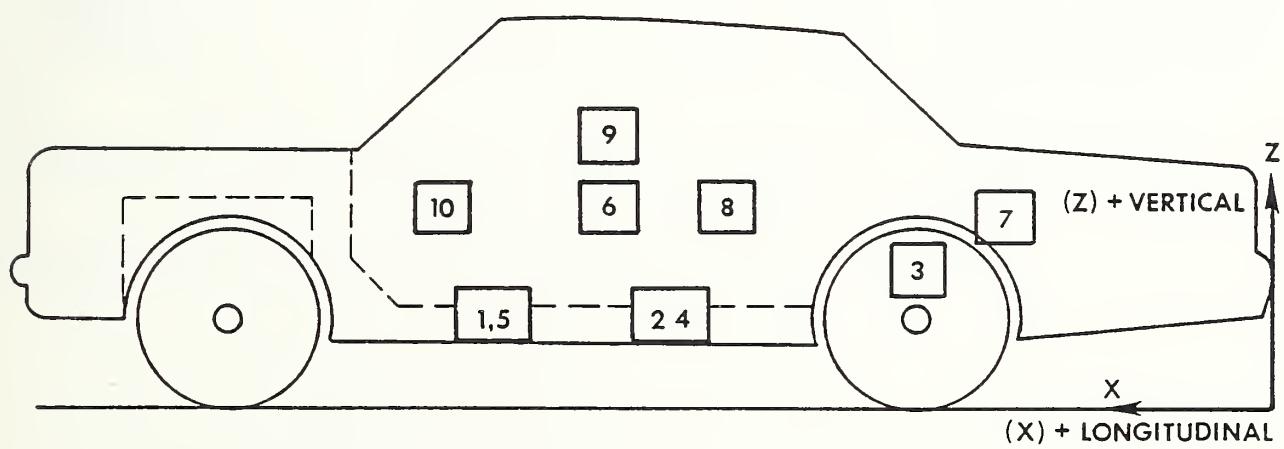
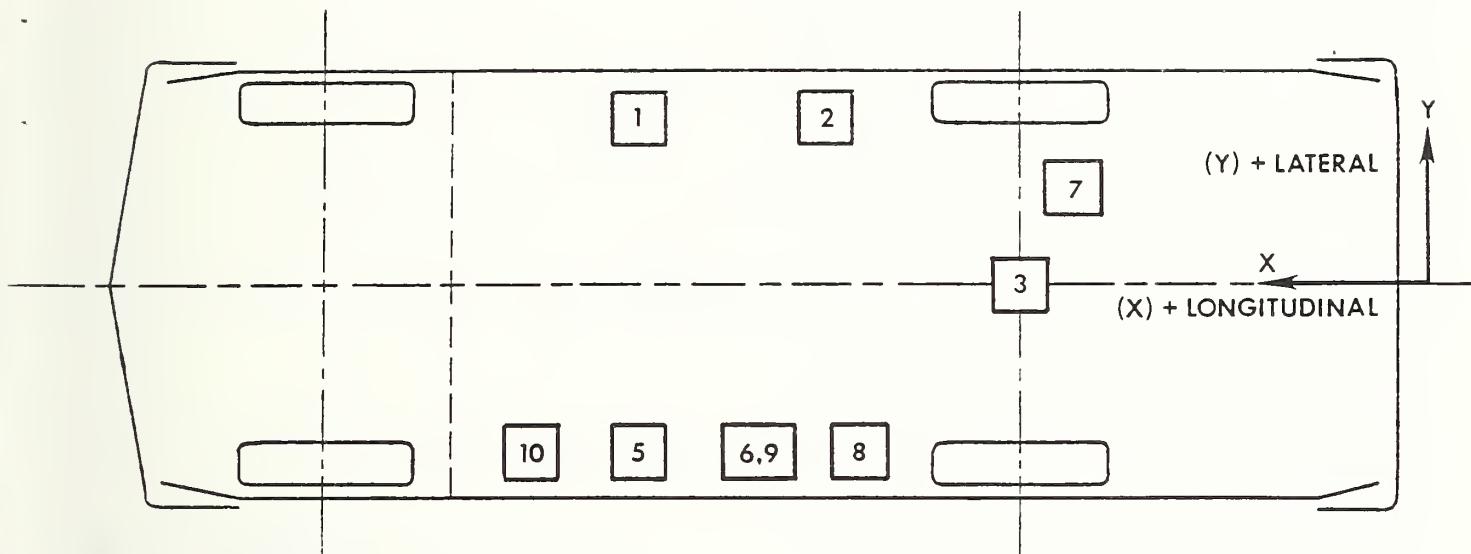
NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	RIGHT SILL AT FRONT SEAT	96.8	26.1	7.0				
	(LONGITUDINAL)	$\Delta V = -0.4$ mph @ 120.00 msec	3.11		66.63	4.83	29.63	
	(LATERAL)	$\Delta V = 15.0$ mph @ 120.00 msec	16.03		36.38	2.14	168.75	
	(VERTICAL)			4.91	28.50	5.42	56.00	
	(RESULTANT)				16.26 @ 36.50			
2	RIGHT SILL AT REAR SEAT	66.8	26.0	10.6				
	(LONGITUDINAL)	$\Delta V = -0.9$ mph @ 120.00 msec	3.10		75.13	4.52	27.25	
	(LATERAL)	$\Delta V = 17.3$ mph @ 120.00 msec	18.30		27.13	2.75	166.63	
	(VERTICAL)			5.84	26.00	3.29	93.75	
	(RESULTANT)				19.67 @ 27.00			
3	REAR DECK OVER. AXLE	39.5	0.0	12.2				
	(LONGITUDINAL)	$\Delta V = -3.7$ mph @ 120.00 msec	2.04		10.38	12.91	23.63	
	(LATERAL)	$\Delta V = 21.1$ mph @ 120.00 msec	19.28		26.50	2.88	227.13	
	(VERTICAL)			15.64	25.63	29.43	29.88	
	(RESULTANT)				31.62 @ 29.75			
4	LEFT SILL AT REAR SEAT	67.0	-25.5	9.8				
	(LATERAL)	$\Delta V = 11.6$ mph @ 66.38 msec	42.00		24.13	31.48	16.88	
	LEFT SILL AT FRONT SEAT	96.9	-26.0	9.5	---	---	Y	---
5	(LATERAL)				---	---	Y	---
	LEFT FRONT DOOR CENTERLINE	92.2	-26.3	24.1				
	(LATERAL)	$\Delta V = 26.6$ mph @ 13.13 msec	230.66		13.00	84.23	21.25	
7	RIGHT REAR COMPARTMENT	26.6	20.2	17.5				
	(LONGITUDINAL)				2.42	60.00	8.11	24.38
8	MIDREAR OF LEFT FRONT DOOR	84.1	-26.7	24.1				
	(LATERAL)	$\Delta V = 22.2$ mph @ 10.50 msec	198.95		11.75	36.02	18.25	
	UPPER LEFT FRONT DOOR CENTERLINE	92.2	-26.6	30.4	---	---	Y	---
10	(LATERAL)				---	---	Y	---
	MIDREAR OF LEFT FRONT DOOR	100.8	-25.9	24.2				
	(LATERAL)	$\Delta V = 19.0$ mph @ 22.63 msec	75.45		14.50	81.19	30.00	

\* Reference: X - Rear Bumper (+ Forward), Y - Vehicle Centerline (+ To Right),  
Z - Ground Level (+ Up)

All measurements of accelerometer locations in inches.

Y See TEST ANOMALIES

## VEHICLE ACCELEROMETER LOCATIONS



YAW RATE GYRO LOCATION AND DATA SUMMARY

LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
				MAX (deg/sec)	TIME (msec)	MAX (deg/sec)	TIME (msec)
YAW RATE GYRO	102.5	0.0	16.1	---	---	Y	---

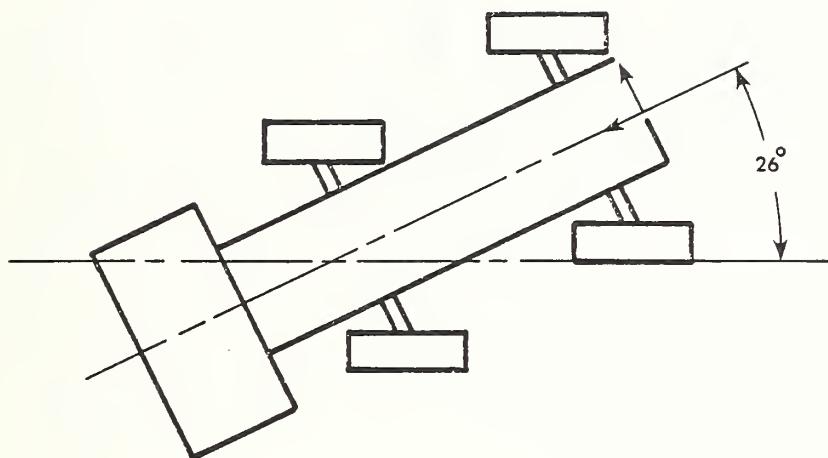
\*Reference: X - Rear Bumper (+ forward), Y - Vehicle Centerline (+ to right),  
Z - Ground Level (+ up)

All measurements of rate gyro in inches.

Yaw rotation is positive when measured counterclockwise as viewed from above.

Y See TEST ANOMALIES

MOVING BARRIER ACCELEROMETER LOCATIONS AND DATA SUMMARY



NO.	LOCATION	X*	Y*	Z*	POSITIVE DIRECTION		NEGATIVE DIRECTION	
					MAX (g)	TIME (msec)	MAX (g)	TIME (msec)
1	CENTER OF GRAVITY (LONGITUDINAL)	73.5	0.0	12.8 $\Delta V = -16.7 \text{ mph} @ 120.00 \text{ msec}$	0.64	143.00	14.29	44.75
	(LATERAL)			$\Delta V = -3.9 \text{ mph} @ 120.00 \text{ msec}$	1.53	81.00	7.62	32.38
	(VERTICAL)				2.79	46.25	3.49	31.75
	(RESULTANT)					15.19 @ 45.13		
2	REAR FRAME MEMBER (LONGITUDINAL)	19.4	-18.5	12.7 $\Delta V = -15.7 \text{ mph} @ 120.00 \text{ msec}$	2.18	152.88	15.17	44.25
	(LATERAL)			$\Delta V = -0.6 \text{ mph} @ 120.00 \text{ msec}$	2.55	24.00	2.74	164.13

\* Reference: X - Rear Most Point of Frame (+ To Forward), Y - Barrier Centerline (+ To Right), Z - Ground Level (+ To Up)

All measurements of accelerometer locations in inches.

CAMERA INFORMATION

CAMERA NO.	LOCATION	TYPE	LENS (mm)	SPEED (fps)	PURPOSE OF CAMERA DATA
1	Onboard MDB - Tight	Photosonic 1B	25	500	Closeup of impact point
2	Onboard MDB - Wide	Photosonic 1B	13	500	Dummy kinematics
3	Overhead - Tight	Photosonic 1B	25	425	Closeup of impact point
4	Overhead - Wide	Photosonic 1B	8	465	Vehicle dynamics
5	Ground Level - Right	Photosonic 1B	25	503	Overall view
6	Ground Level - Left	Photosonic 1B	17	---	Overall view
7	Onboard Windshield	Photosonic 1B	8	802	Driver kinematics - front view
8	Onboard Roof	Photosonic 1B	8	800	Door/Driver contact velocity
9	Onboard Driver	Photosonic 1B	8	800	Driver kinematics
10	Onboard Passenger	Photosonic 1B	8	805	Passenger kinematics

Y See TEST ANOMALIES

LOCATIONS OF OFFBOARD HIGH SPEED CAMERAS

CAMERA NO.	X	Y	Z
1	0	0	25'
2	0	0	25'
5	24'10"	58'8"	45"
6	-20'11"	-13'	45"

Origin of Coordinate System is Point of Impact

+X = Forward with Respect to Striking Vehicle's Velocity Vector

+Y = Rightward with Respect to Striking Vehicle's Velocity Vector

+Z = Upward with Respect to Striking Vehicle's Velocity Vector

NON-GOVERNMENT FURNISHED TRANSDUCER INFORMATION

PARAMETER BEING MEASURED	TYPE OF TRANSDUCER	MODEL NUMBER	SERIAL NUMBER	MFGR.	DATE OF LAST CALIBRATION	SENSITIVITY	DESIRED FULL SCALE (ENGR. UNITS)
BCGXG	Accel	4-202-0001	18851	Bell Howell	12/10/84	.242 MV/G	100 G
BCGYG	Accel	4-202-0001	18859	Bell Howell	12/10/84	.239 MV/G	100 G
BCCZG	Accel	4-202-0001	18847	Bell Howell	12/10/84	.246 MV/G	100 G
BRCXG	Accel	4-202-0001	18240	Bell Howell	11/8/84	.239 MV/G	100 G
BRCYG	Accel	4-202-0001	19022	Bell Howell	11/8/84	.220 MV/G	100 G

All dummy and struck vehicle accelerometers were Government Furnished Equipment and were Endevco 2264 Accelerometers.

APPENDIX A  
PHOTOGRAPHS

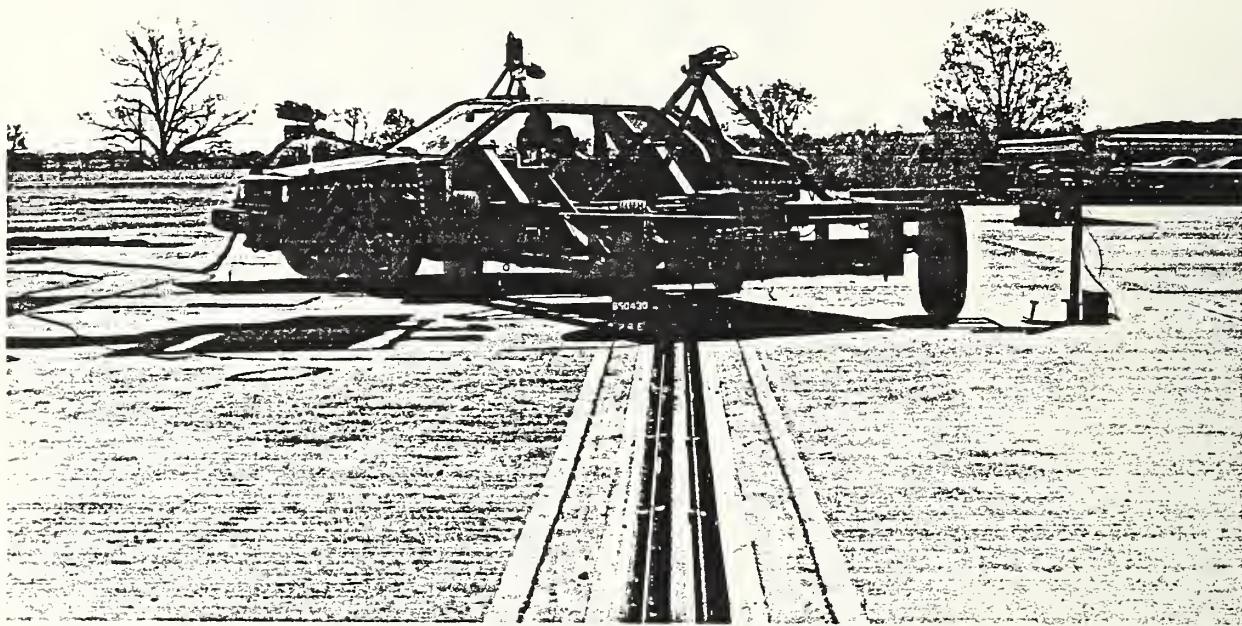


Figure A-1. PRE-TEST OVERALL - VIEW 1

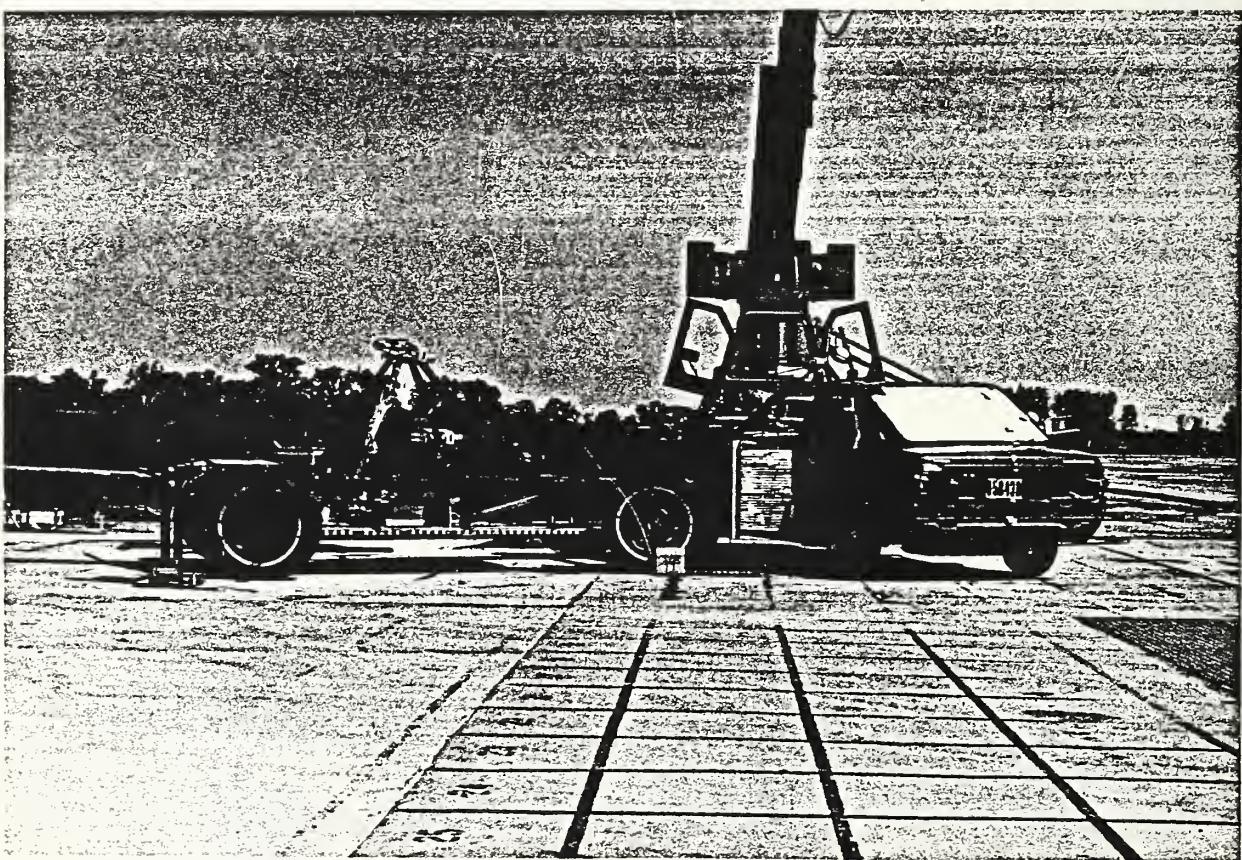


Figure A-2. PRE-TEST OVERALL - VIEW 2  
A-2

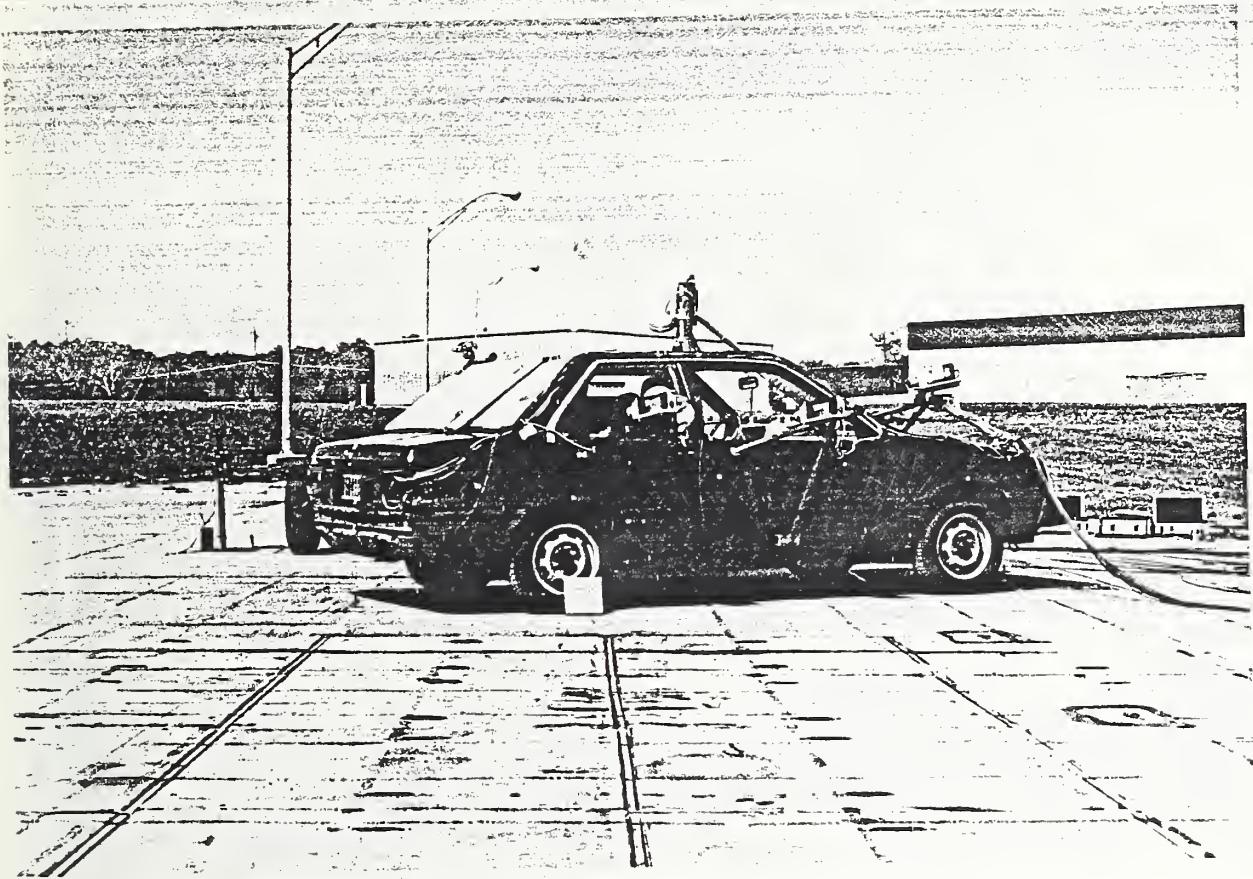


Figure A-3. PRE-TEST OVERALL - VIEW 3

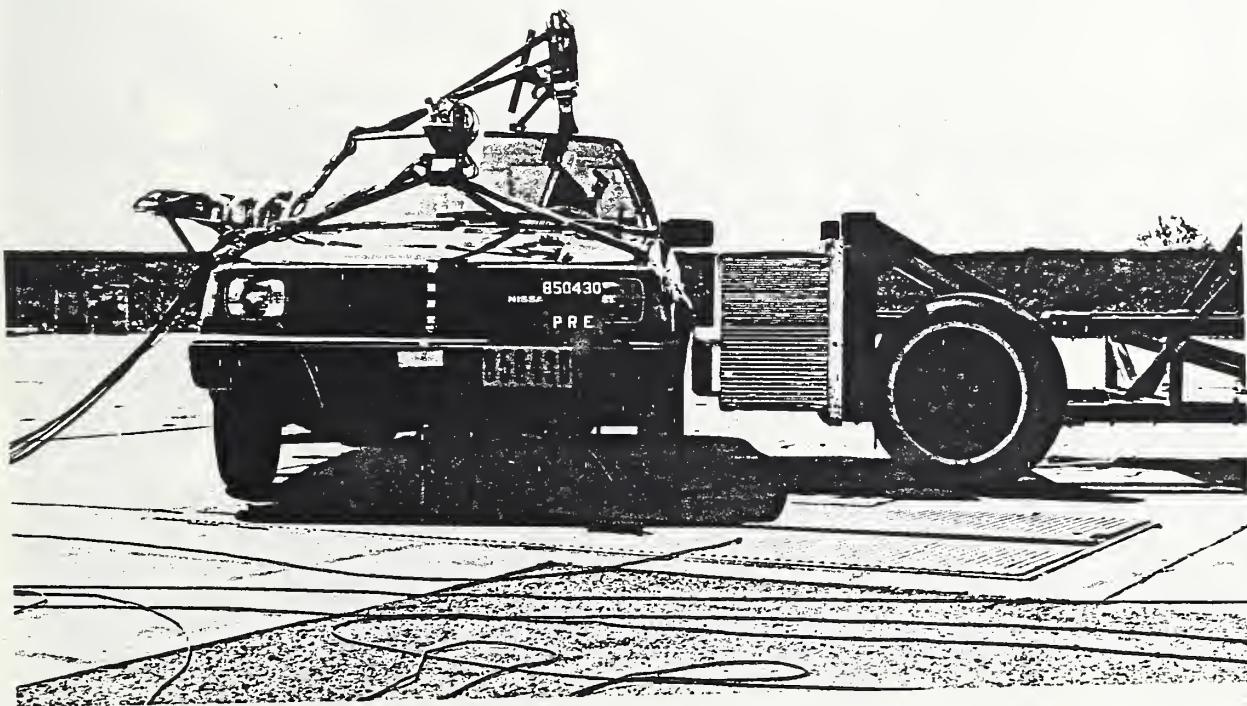


Figure A-4. PRE-TEST OVERALL - VIEW 4  
A-3

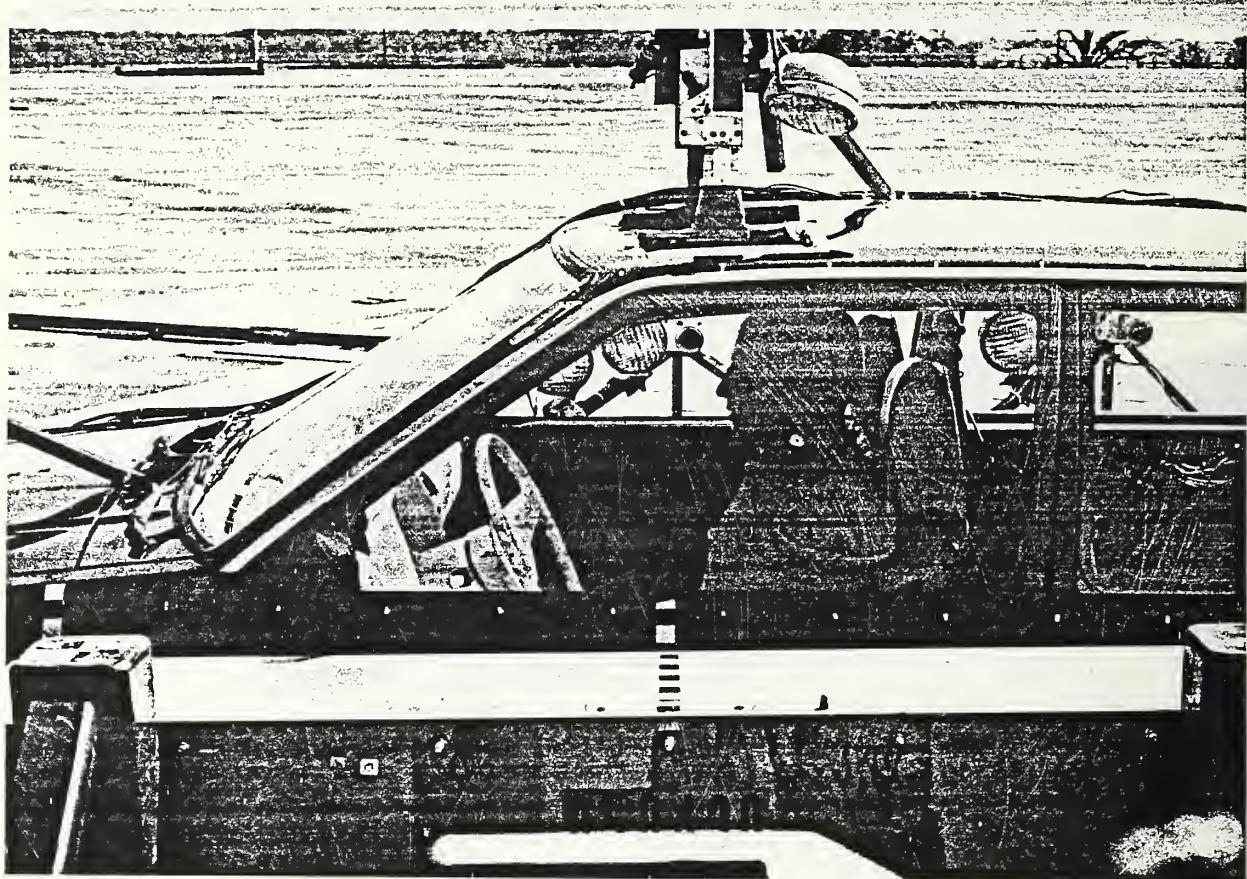


Figure A-5. PRE-TEST CLOSEUP - VIEW 1

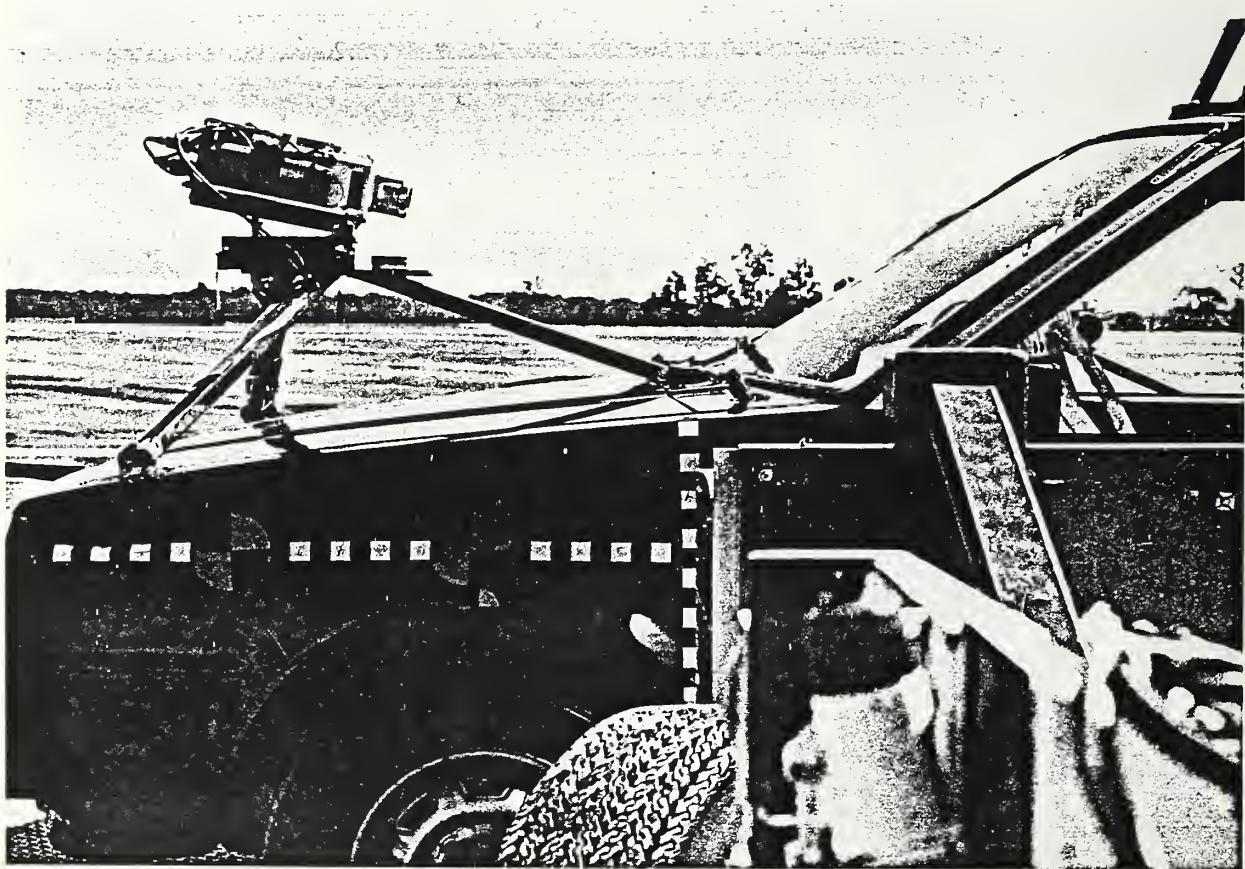


Figure A-6. PRE-TEST CLOSEUP - VIEW 2

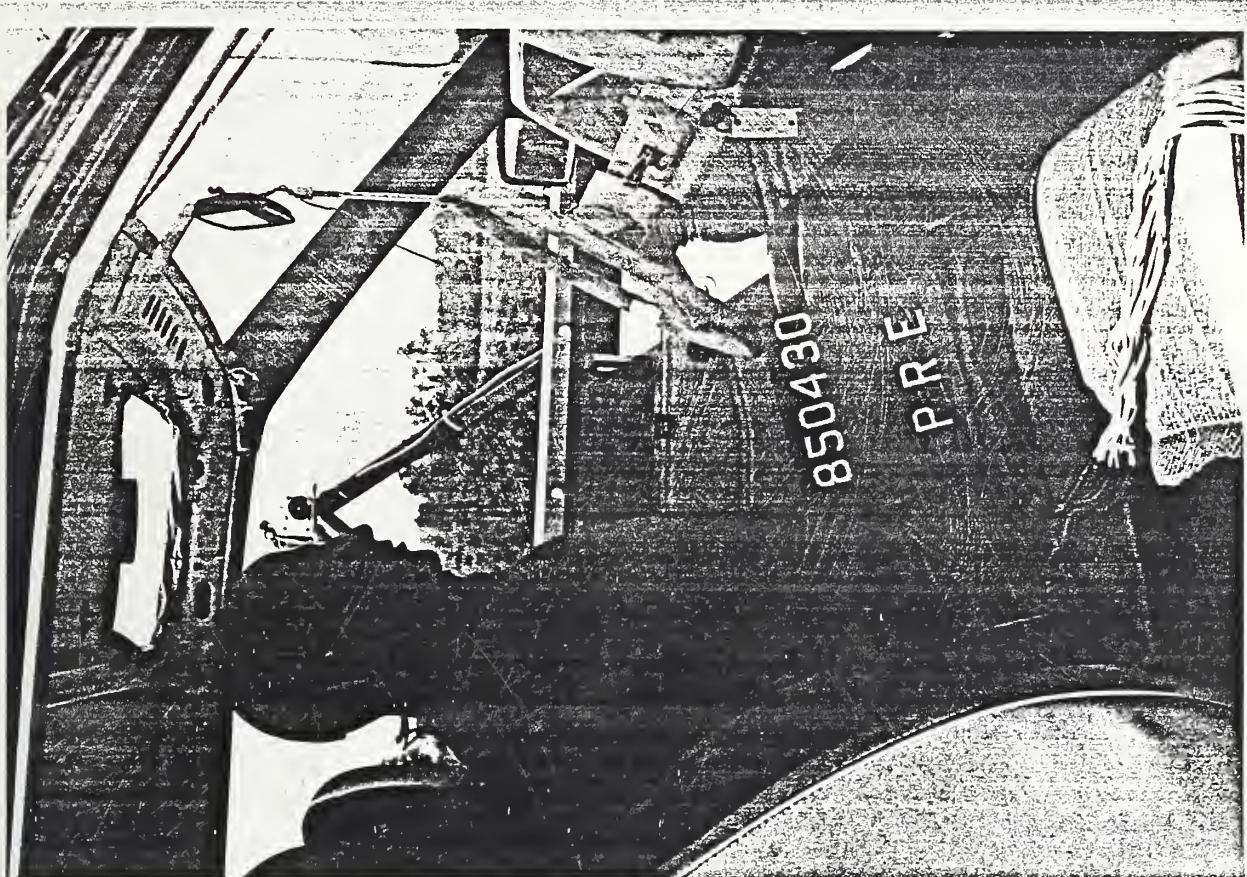


Figure A-7. PRE-TEST DRIVER DUMMY VIEW



Figure A-8. PRE-TEST PASSENGER DUMMY VIEW



Figure A-9. CRASH EVENT PHOTOGRAPH

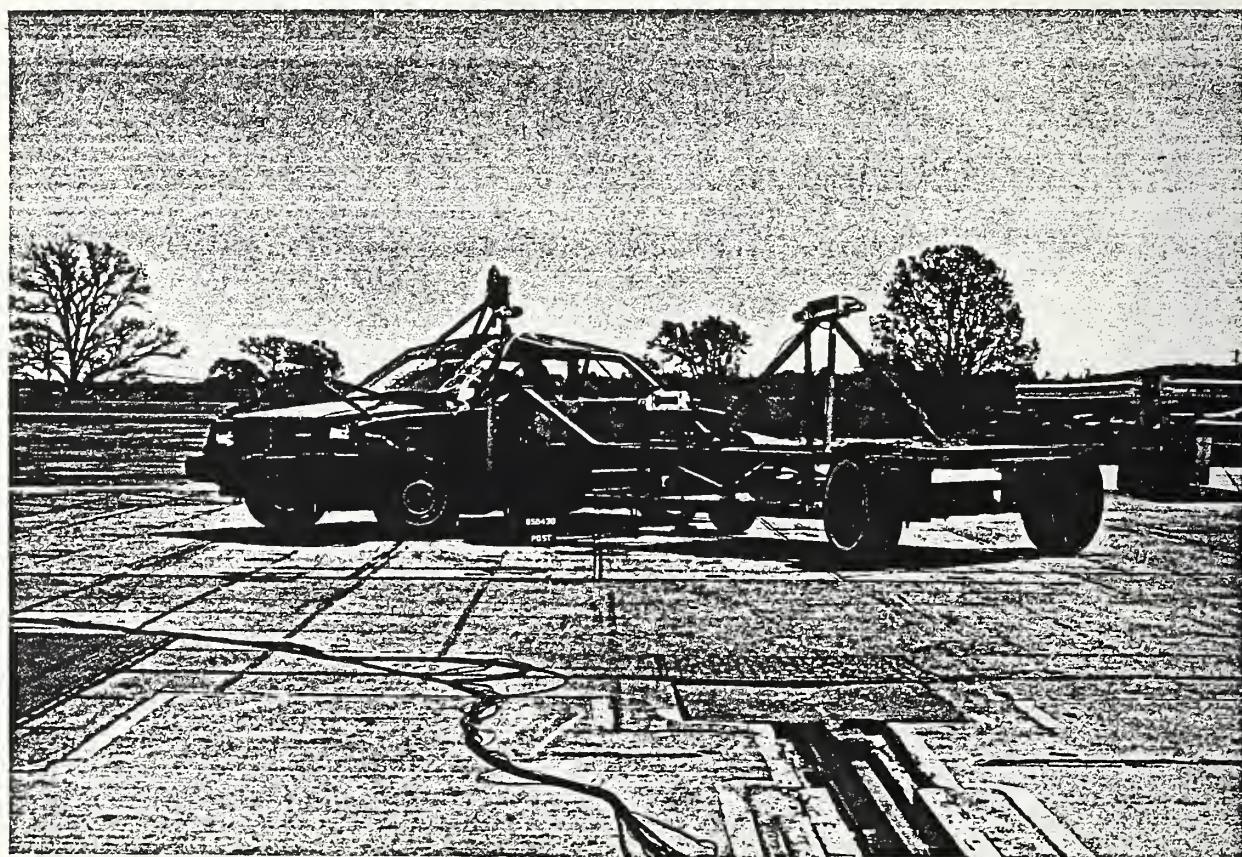


Figure A-10. POST-TEST OVERALL - VIEW 1  
A-6

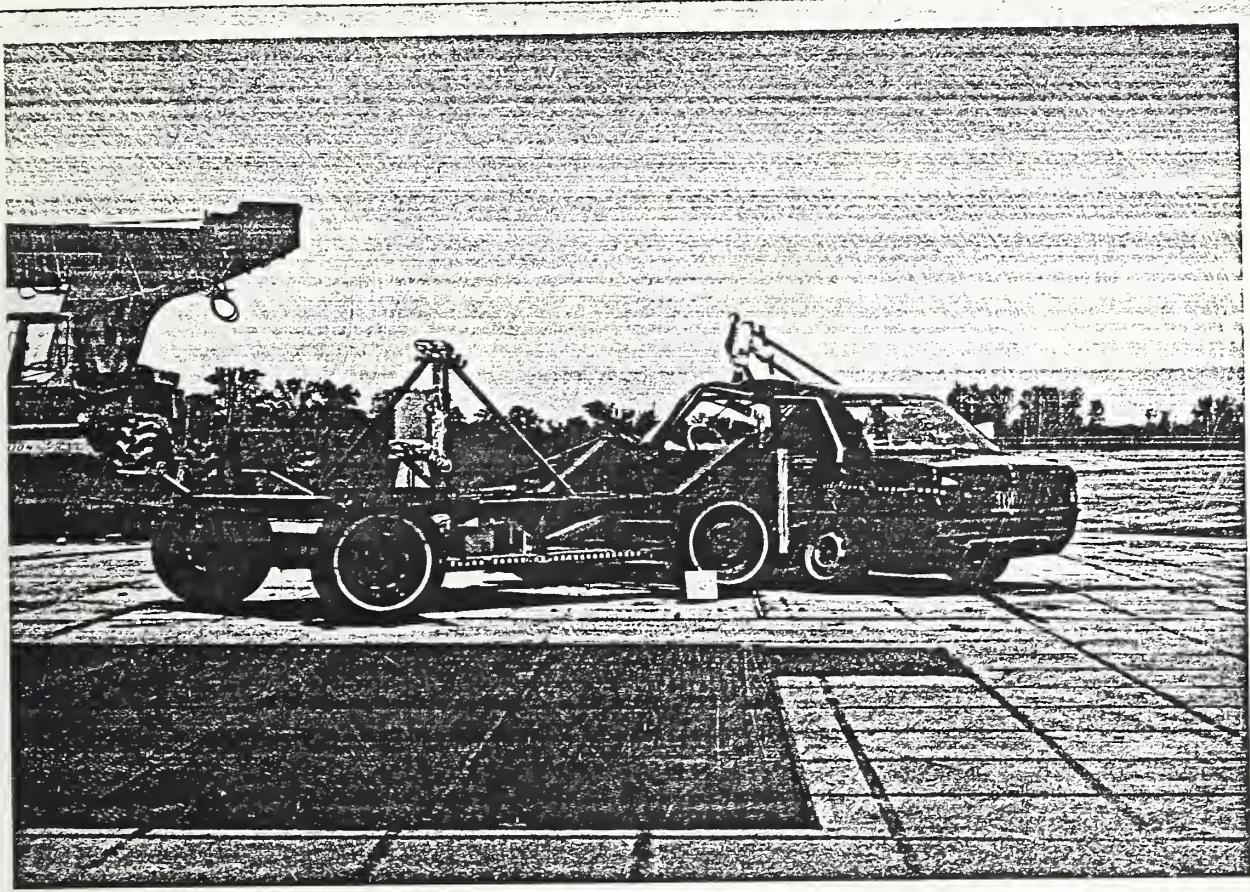


Figure A-11. POST-TEST OVERALL - VIEW 2



Figure A-12. POST-TEST OVERALL - VIEW 3

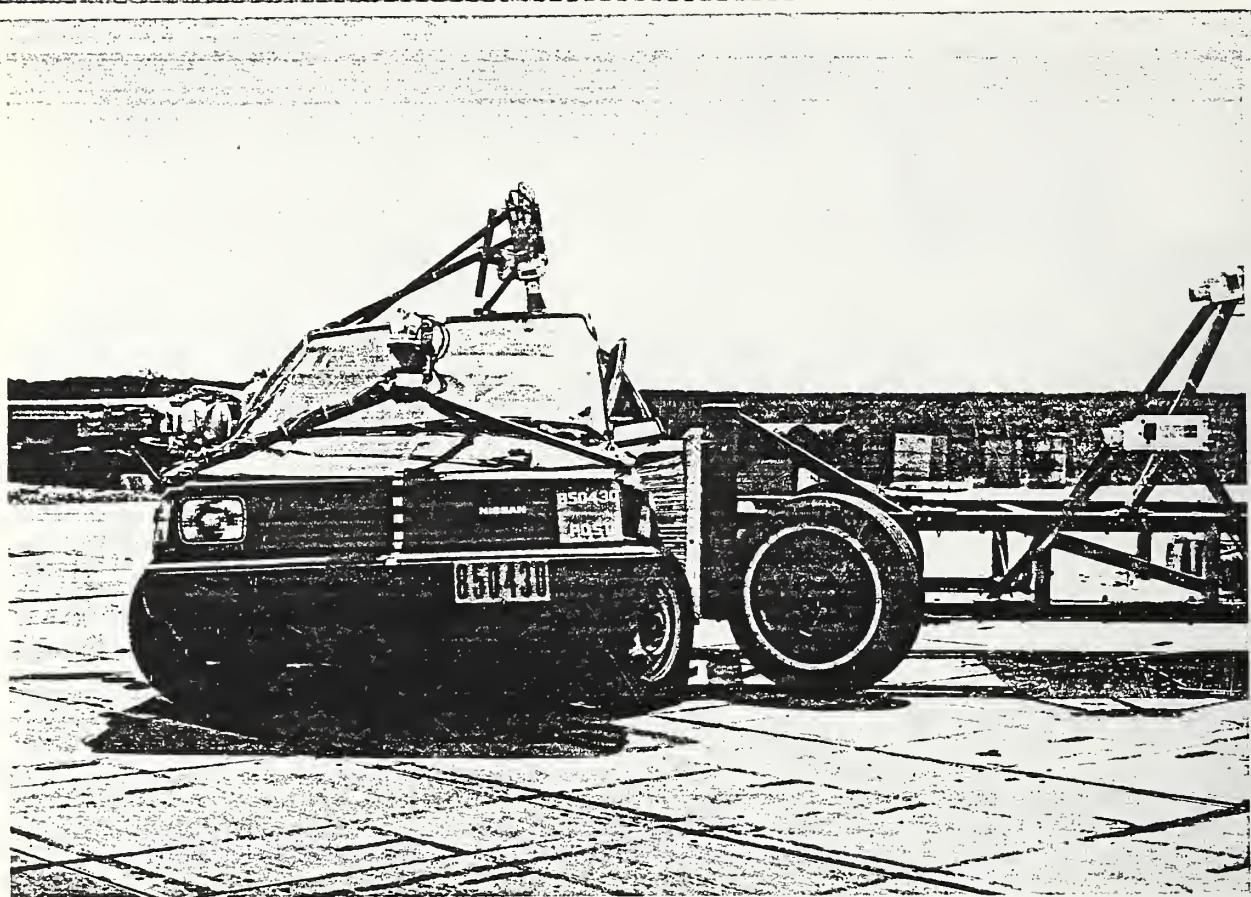


Figure A-13. POST-TEST OVERALL - VIEW 4

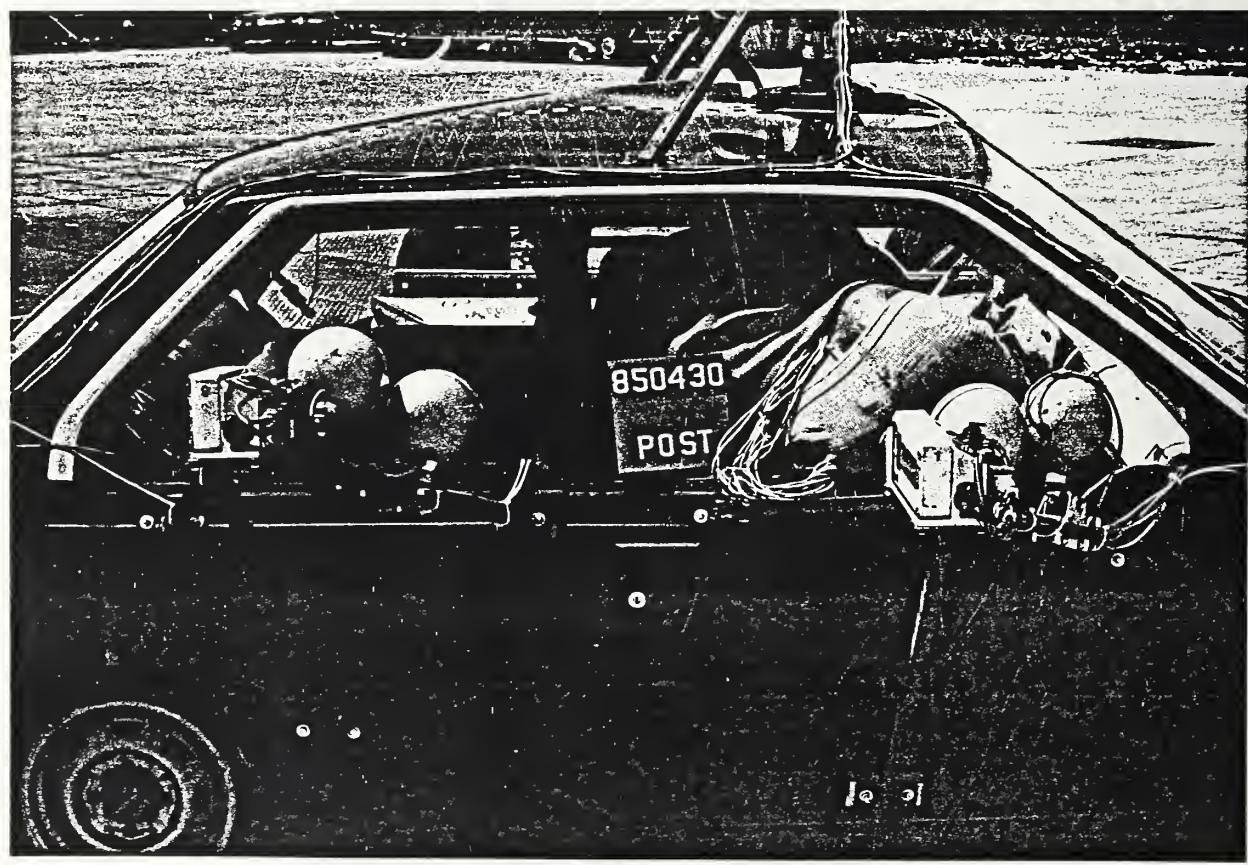


Figure A-14. POST-TEST CLOSEUP VIEW



Figure A-15. POST-TEST DRIVER DUMMY VIEW



Figure A-16. POST-TEST PASSENGER DUMMY VIEW

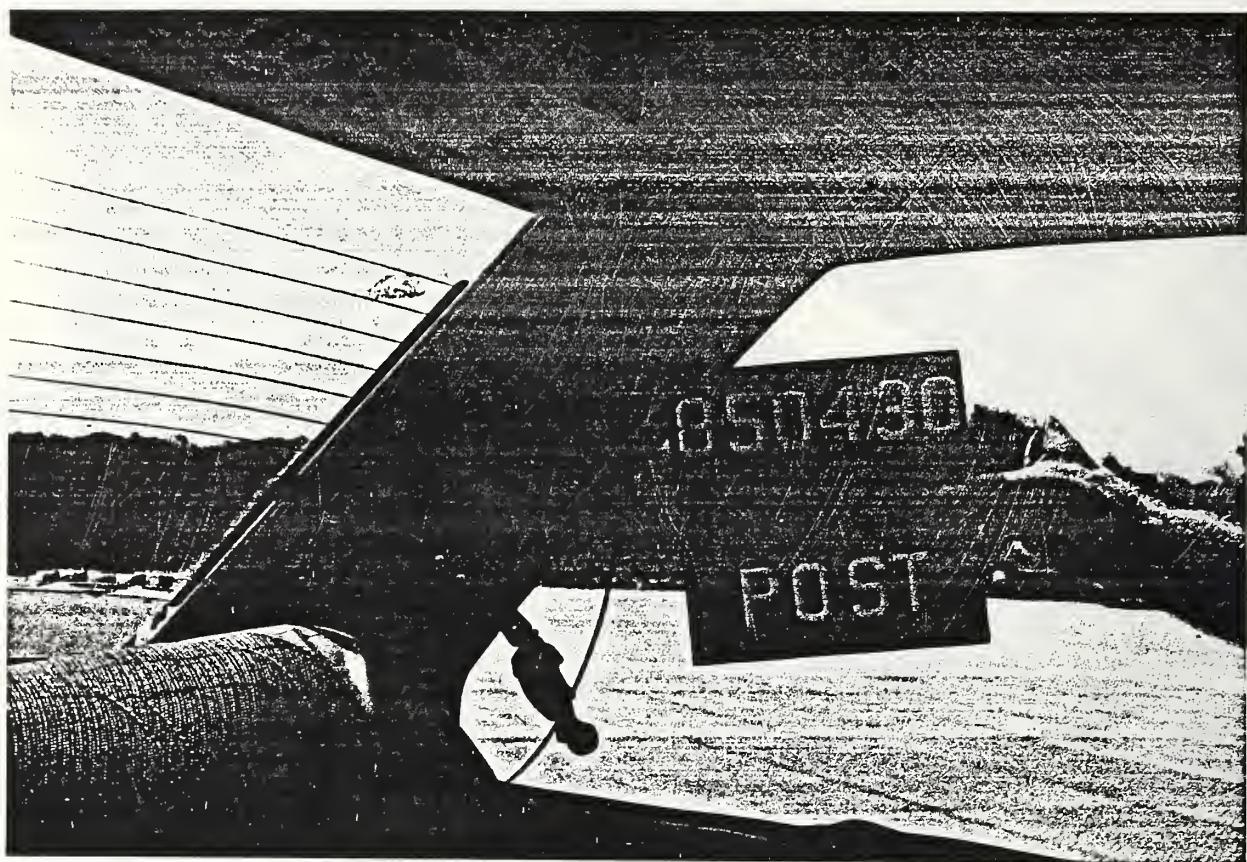


Figure A-17. PASSENGER DUMMY HEAD CONTACT POINTS

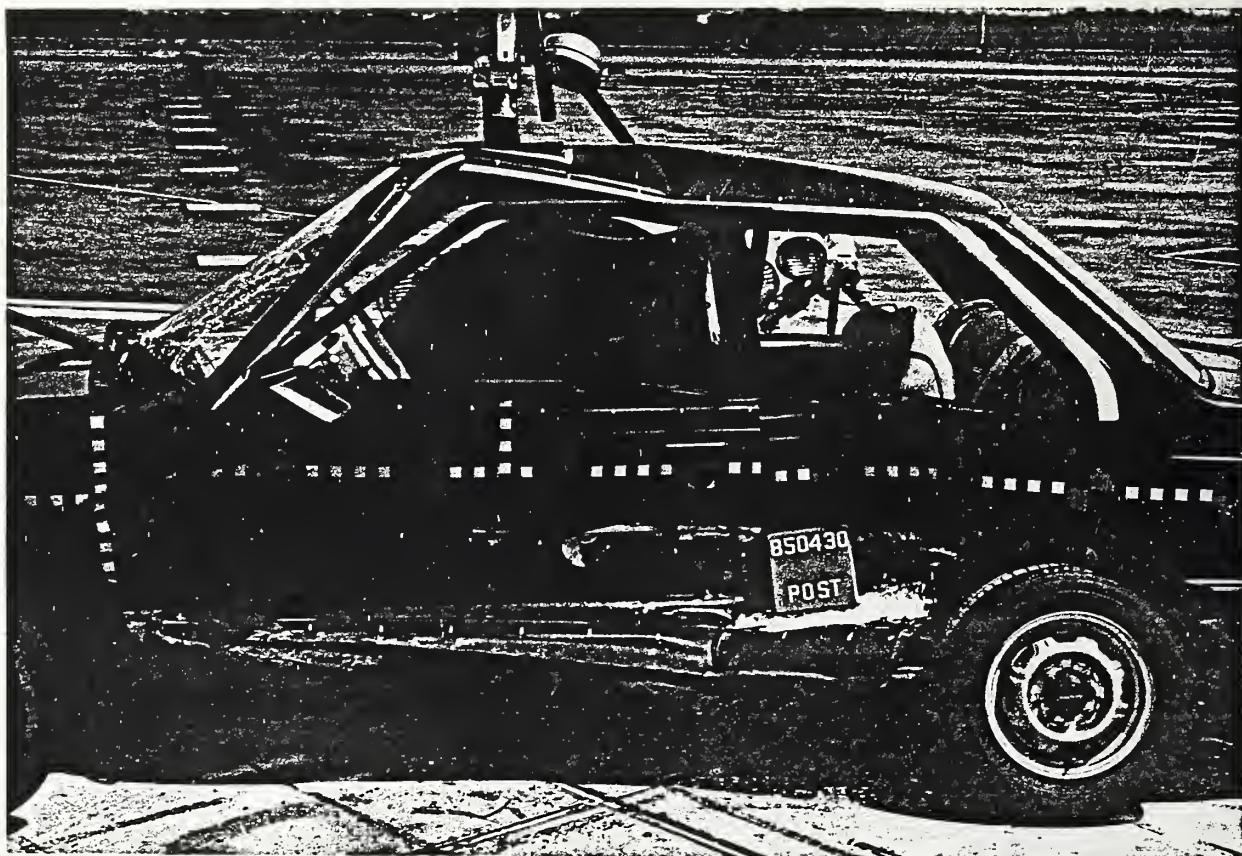


Figure A-18. POST-TEST VEHICLE DAMAGE - VIEW 1

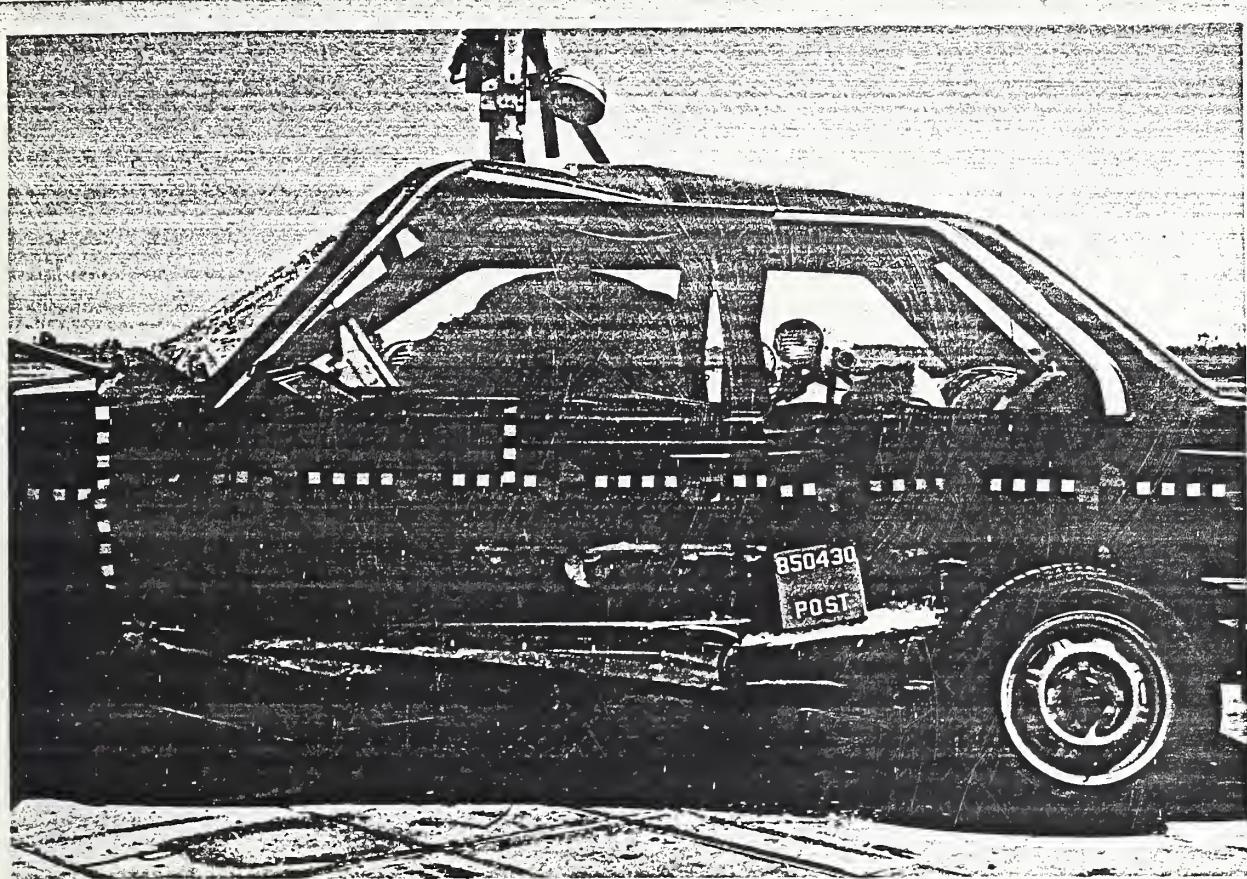


Figure A-19. POST-TEST VEHICLE DAMAGE - VIEW 2

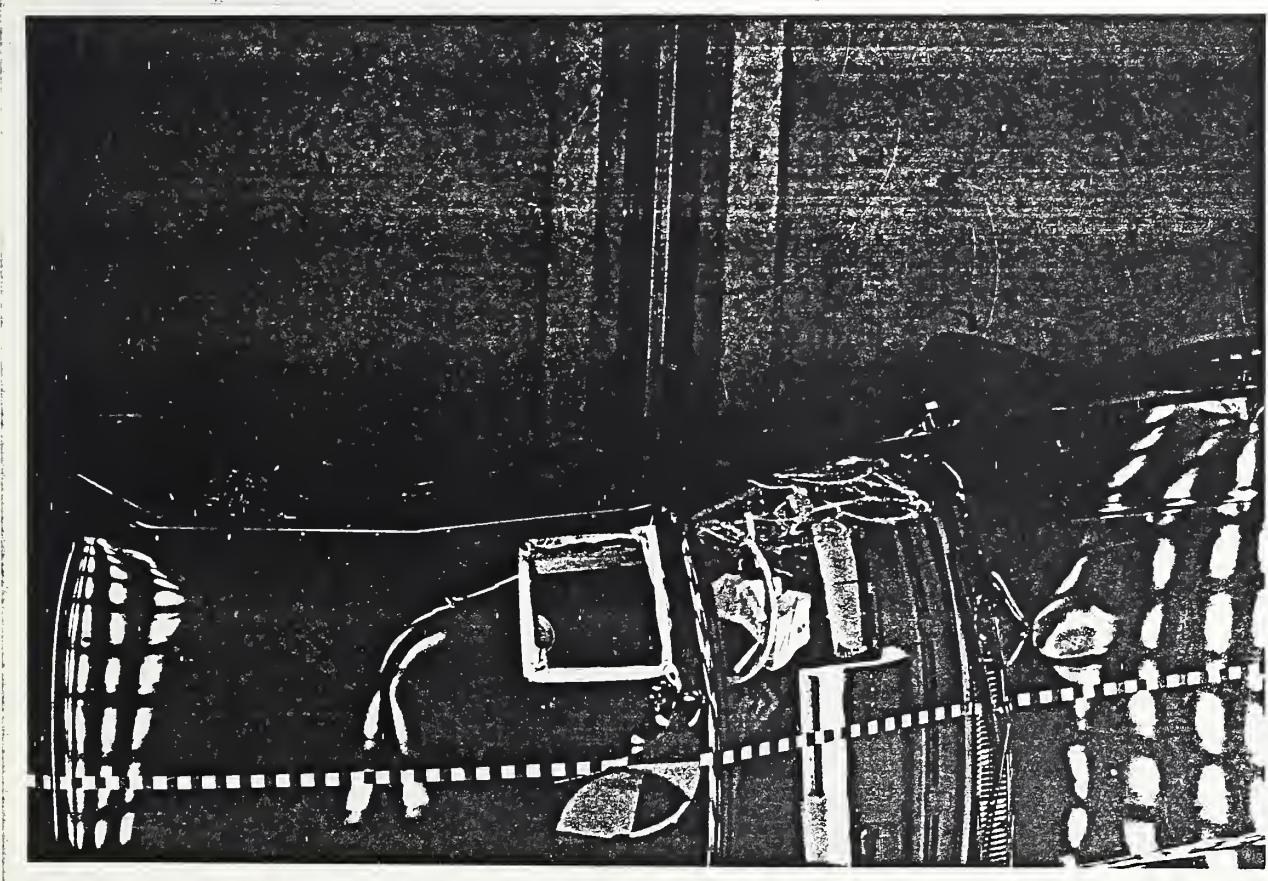


Figure A-20. POST-TEST OVERHEAD VIEW  
A-11

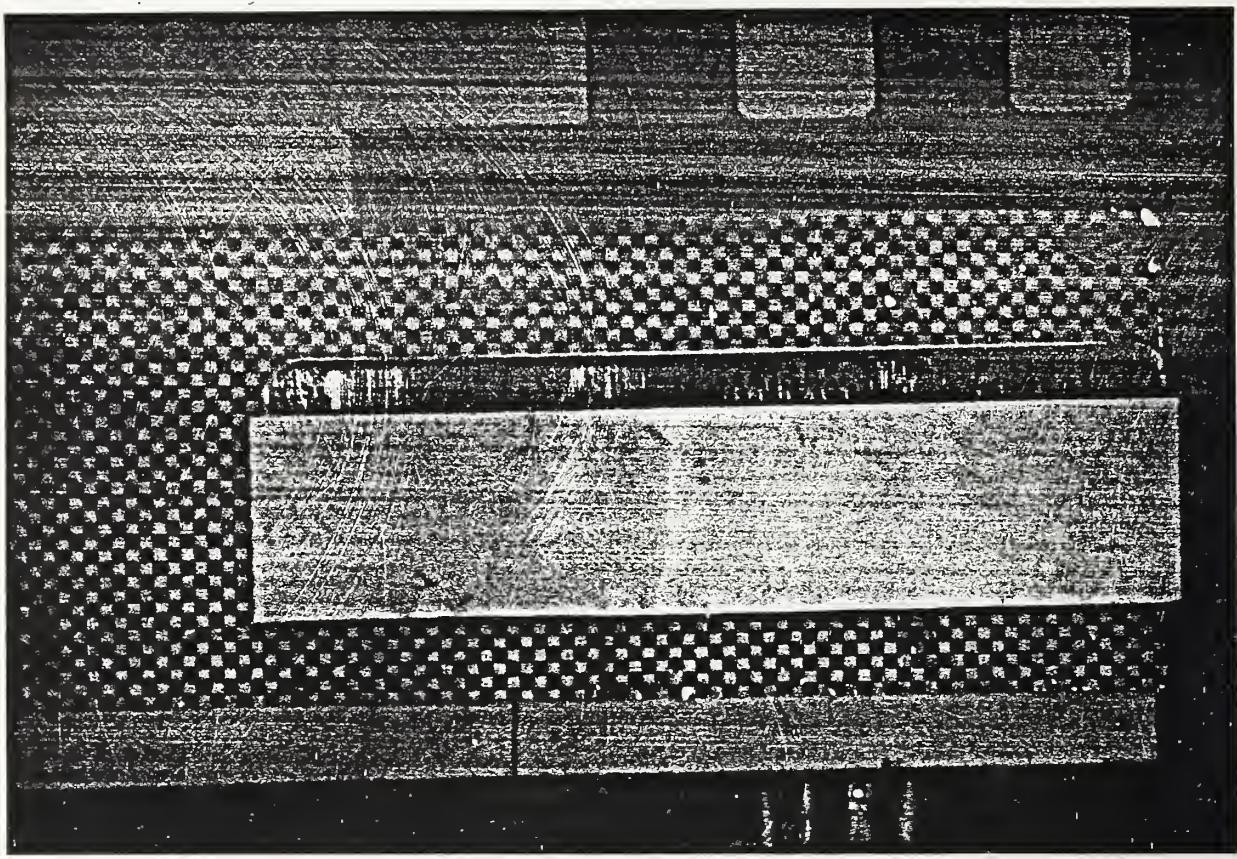


Figure A-21. PRE-TEST MDB FACE - VIEW 1

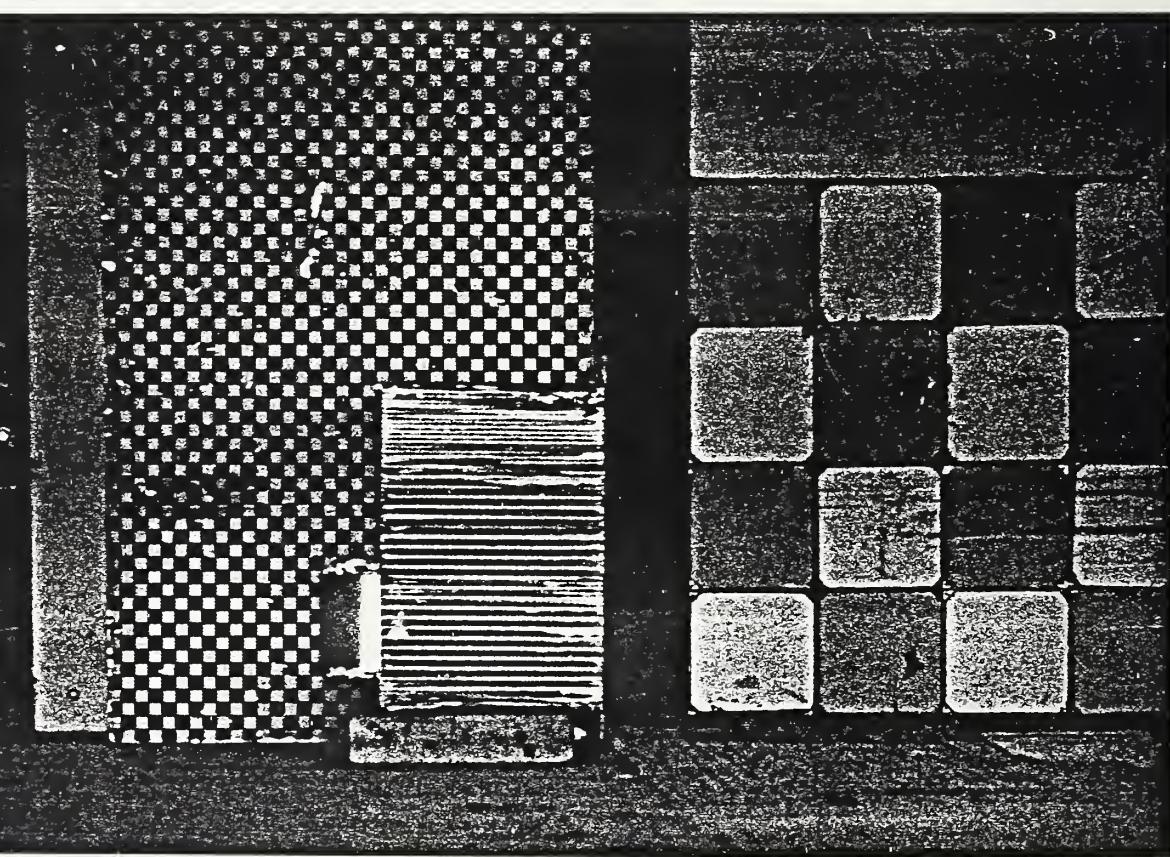


Figure A-22. PRE-TEST MDB FACE - VIEW 2  
A-12

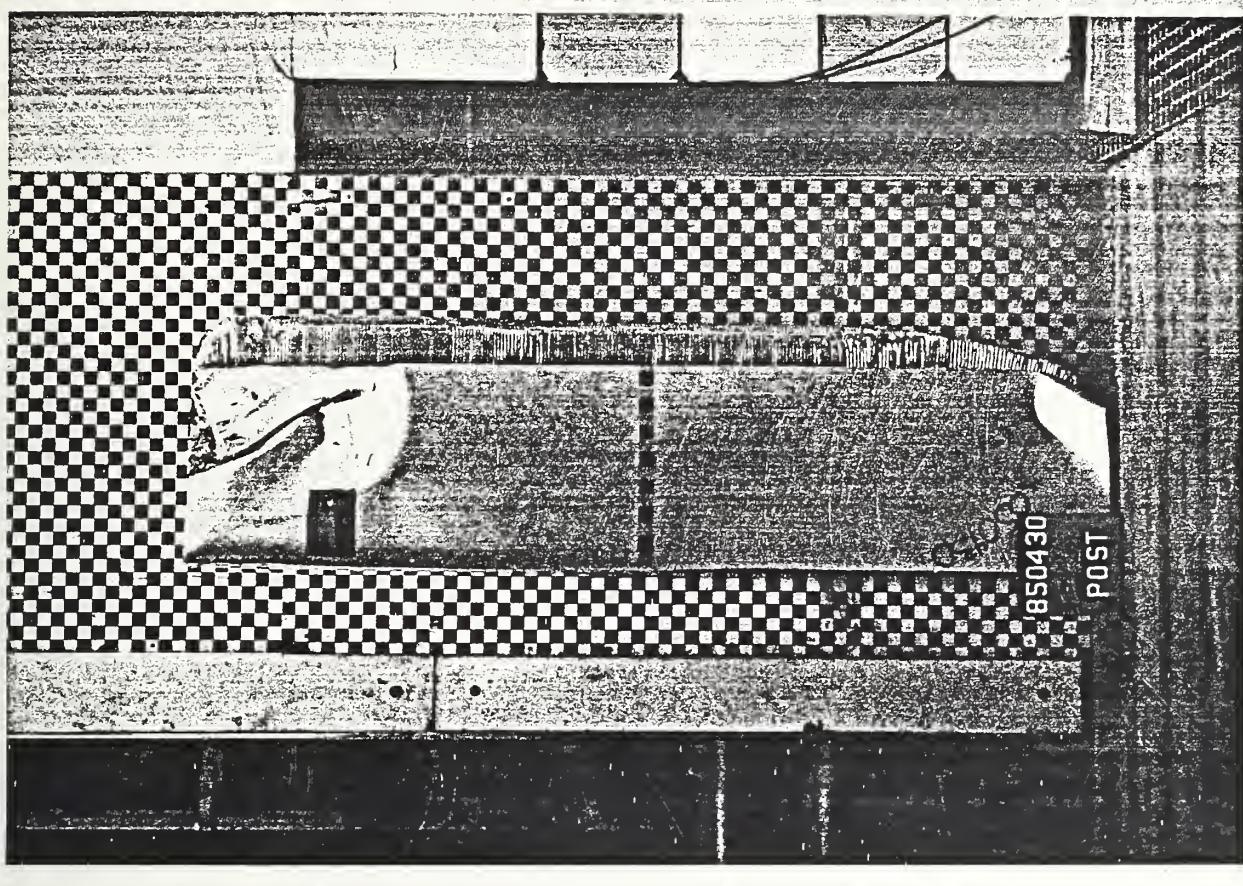


Figure A-23. POST-TEST MDB FACE - VIEW 1

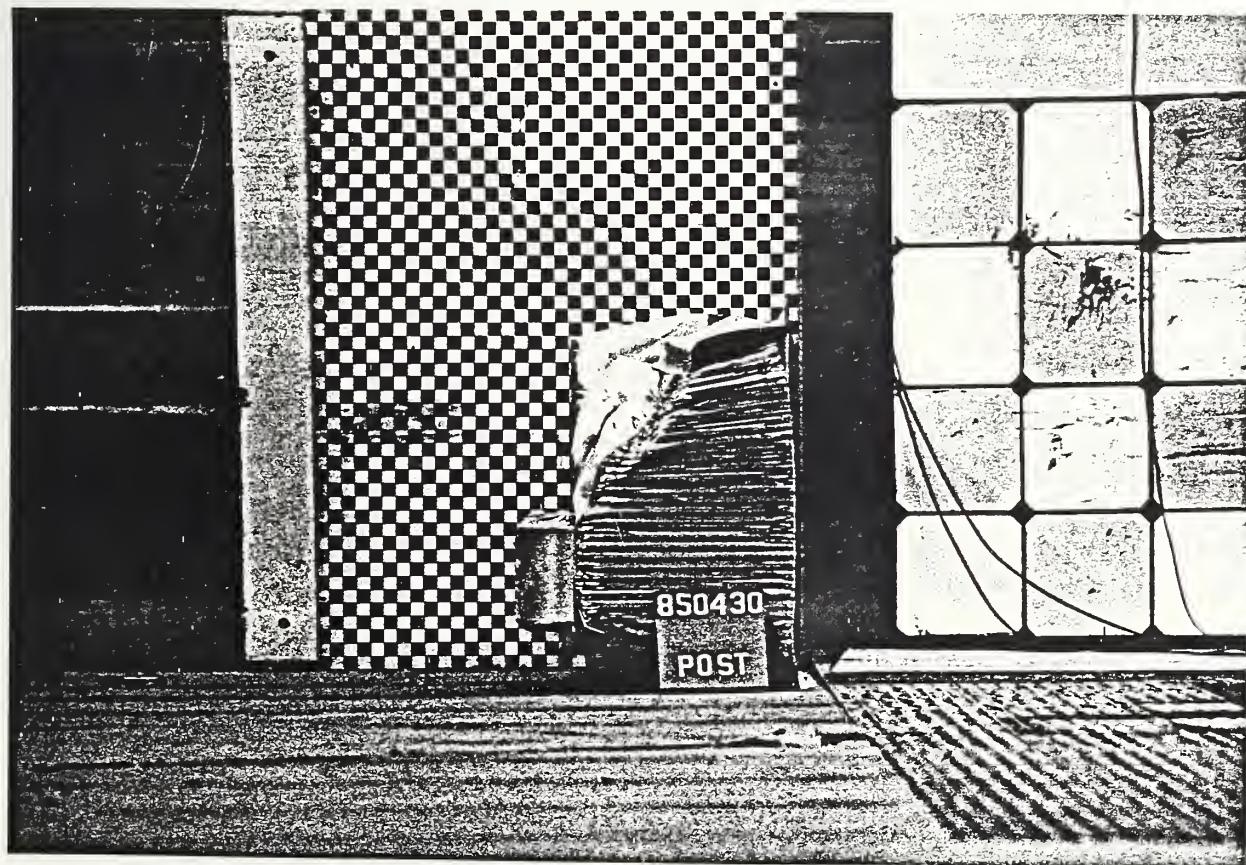


Figure A-24. POST-TEST MDB FACE - VIEW 2  
A-13



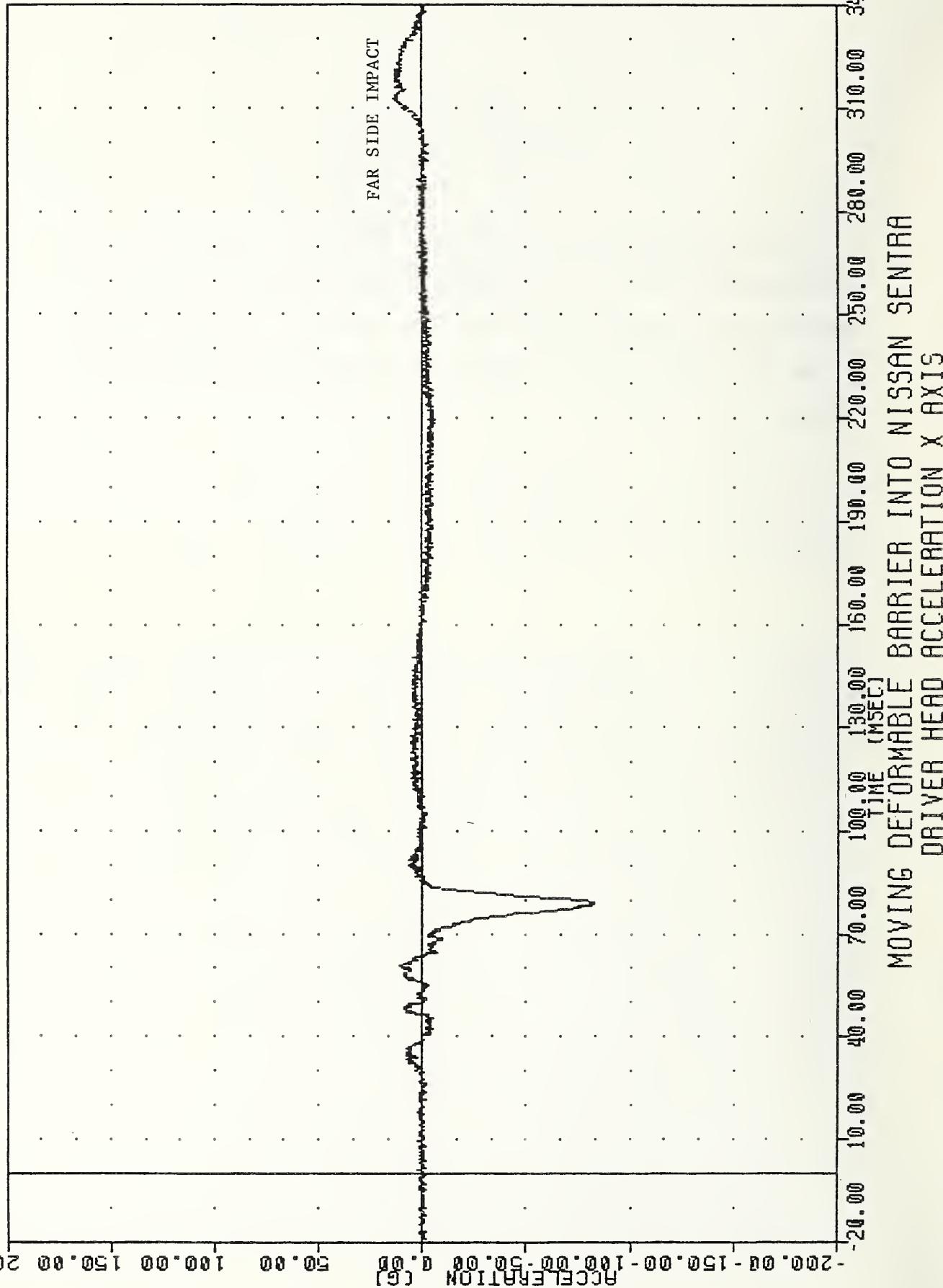
APPENDIX B  
DATA PLOT PRESENTATION

Data plots generated from the crash test data are presented on the following pages. All data are recorded on magnetic tape for inclusion in the NHTSA crash test data base system. All data were filtered according to SAE J211, except that dummy thorax data were filtered using the HSRI filter.

YRT  
SI PROTECTION PROD YEH  
851200@00000  
HDXG1

PLOT DATE 9-MAY-85 10:28:49

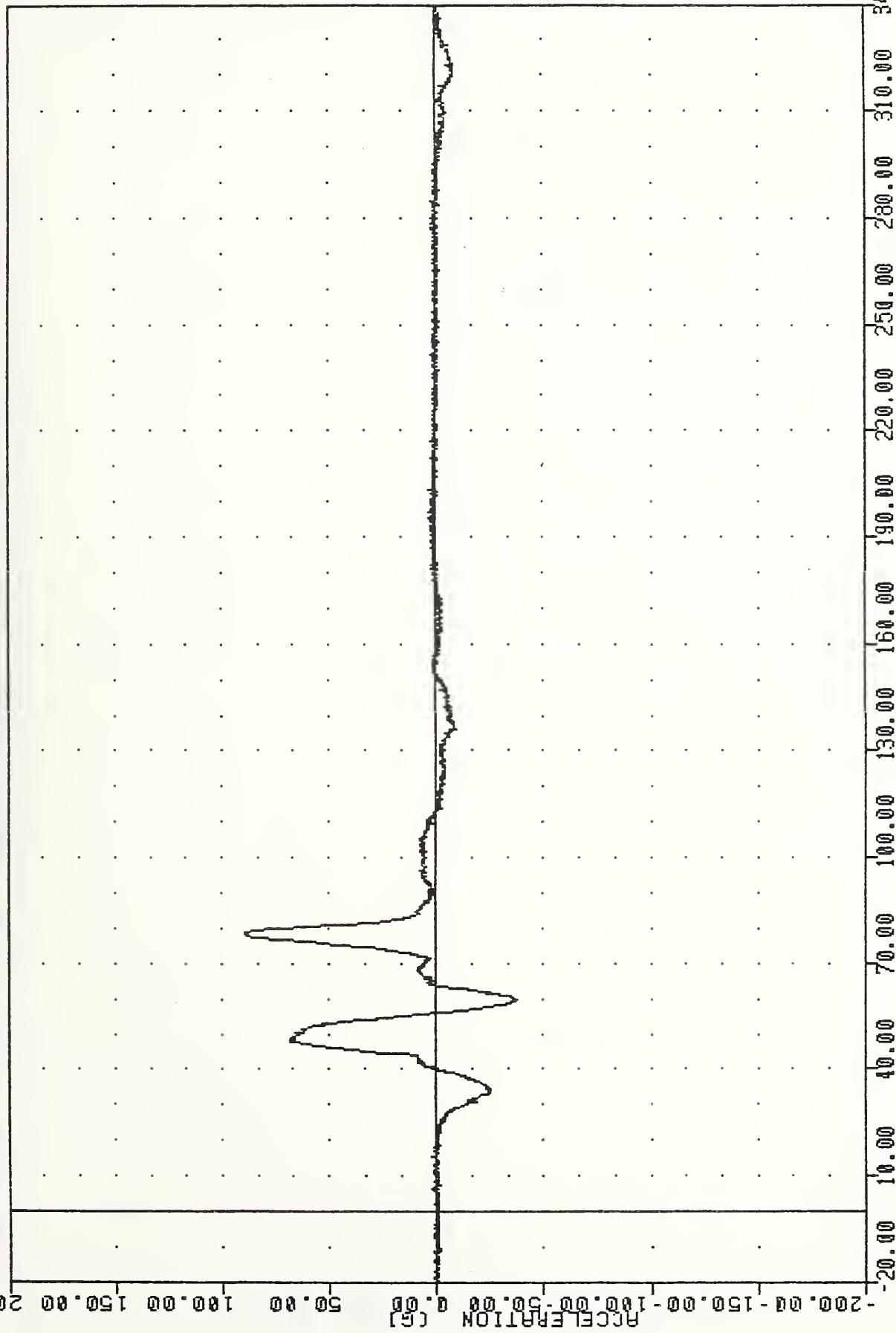
FILTER = ALPPF 1650/ 5217/ -40  
MIN. MAX VALUES = -82.098 78.88 , 13.88 & 312.63



VRT  
SI PROTECTION PROD VEH  
851200000000  
HEDY61

PLOT DATE 9-MAY-85 10:28:49

FILTER = ALPF 1650/ 5217/-40  
MIN. MAX VALUES = -37.63 & 59.63 , 89.62 & 78.13



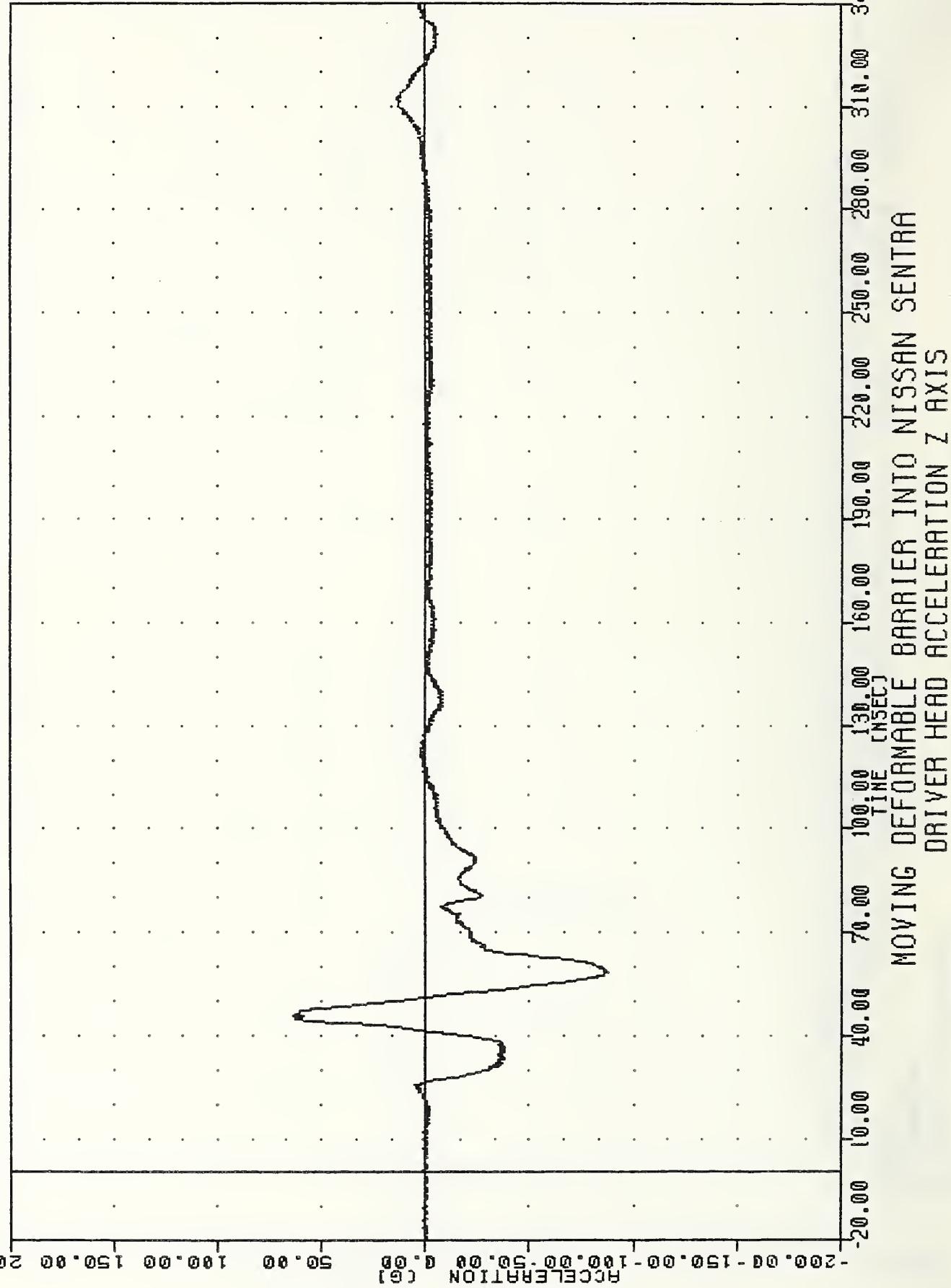
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER HEAD ACCELERATION Y AXIS

VAT 85043@  
SI PROTECTION PROD YEH  
85120000000  
HEDZ61

PLOT DATE 9-MAY-85 10:28:49

FILTER = ALPF 1650/ 5217/ -40  
MIN, MAX VALUES = -67.66 & 58.38 ,

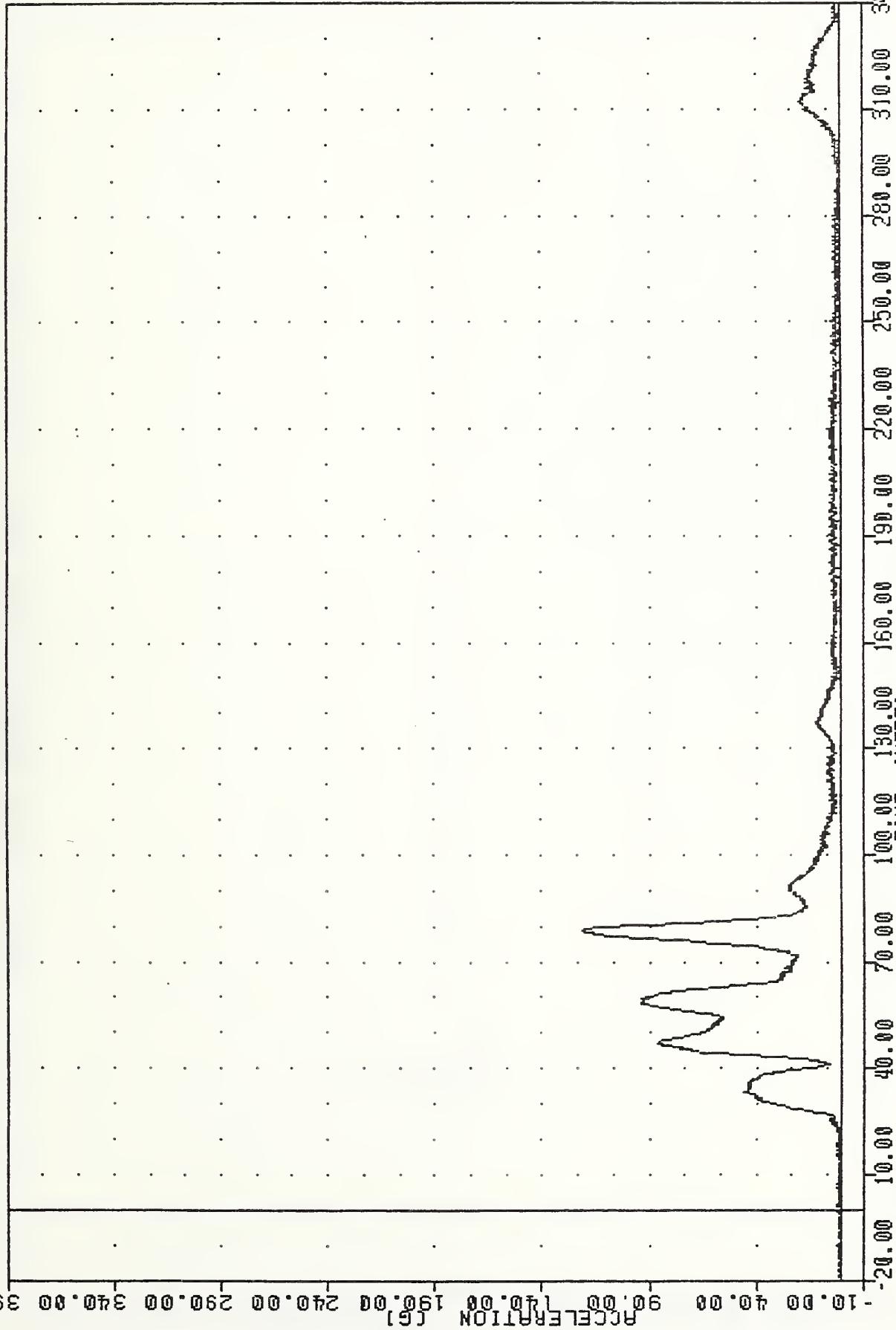
63.70 & 45.63



VRT  
SI PROTECTION PROD VEH  
851200000000  
HEDRG1

PLOT DATE 9-MAY-85 10:26:49

FILTER = ALPF 1650/ 5217/ -40  
MIN, MAX VALUES = 0.238 291.00 , 121.85 & 79.00

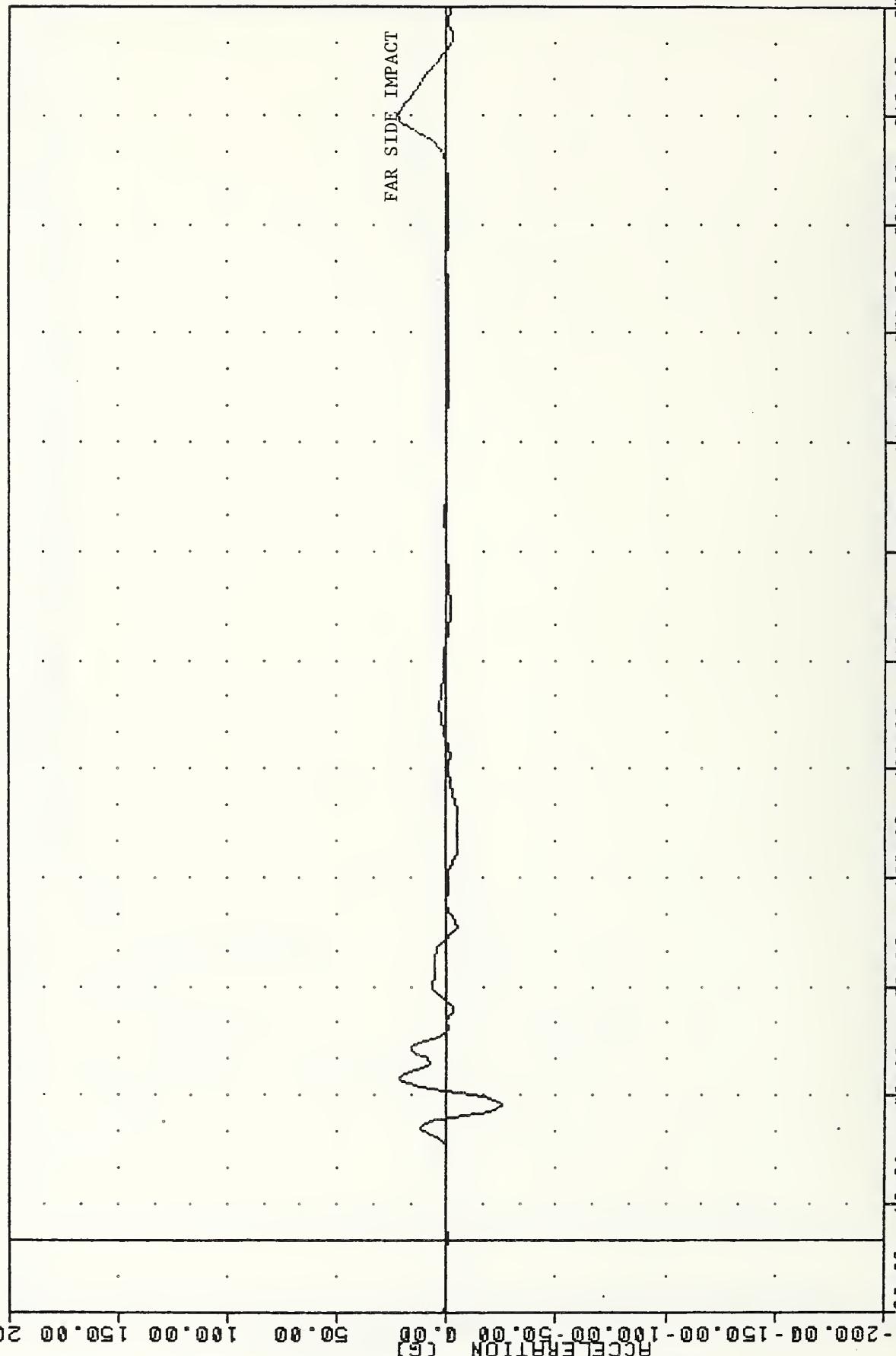


MOVING DEFOMMABLE BARRIER INTO NISSAN SENTRA  
DRIVER HEAD RESULTANT

YRT , 850430  
SI PROTECTION PHOD YEH  
85120000000  
T01XG1

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/-50  
MIN. MAX VALUES = -25.59@ 37.50 . 22.05 @ 310.00

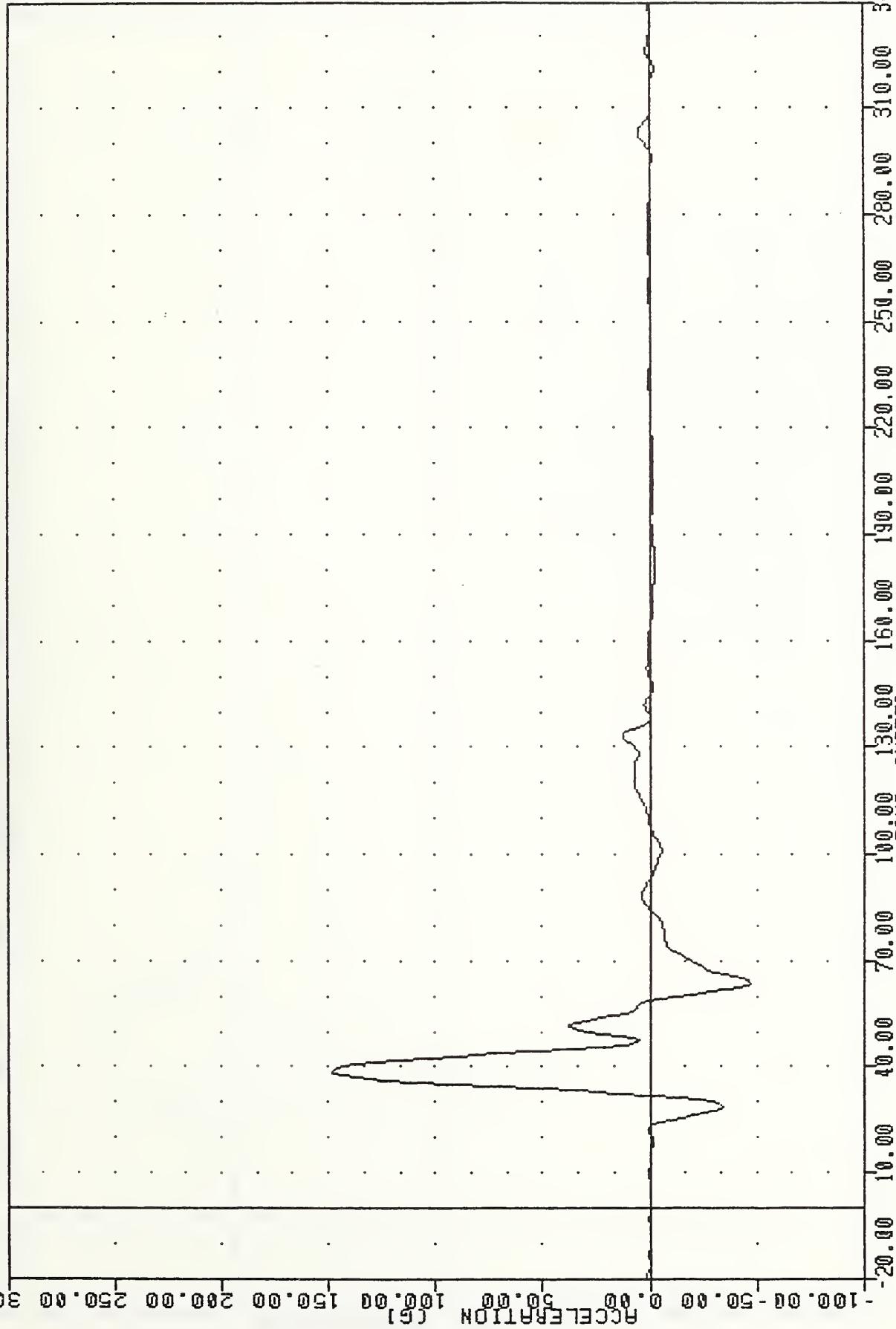


-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER UPPER SPINE ACCELERATION X AXIS

VRT  
SI PROTECTION PROD VEH  
65120@000000  
T01YG1

PL01 DATE 9-MAY-85 10:25:49

FILTER = HSR1 136/ 189/ -50  
MIN, MAX VALUES = -46.87@ 63.75 , 148.45 @ 38.75

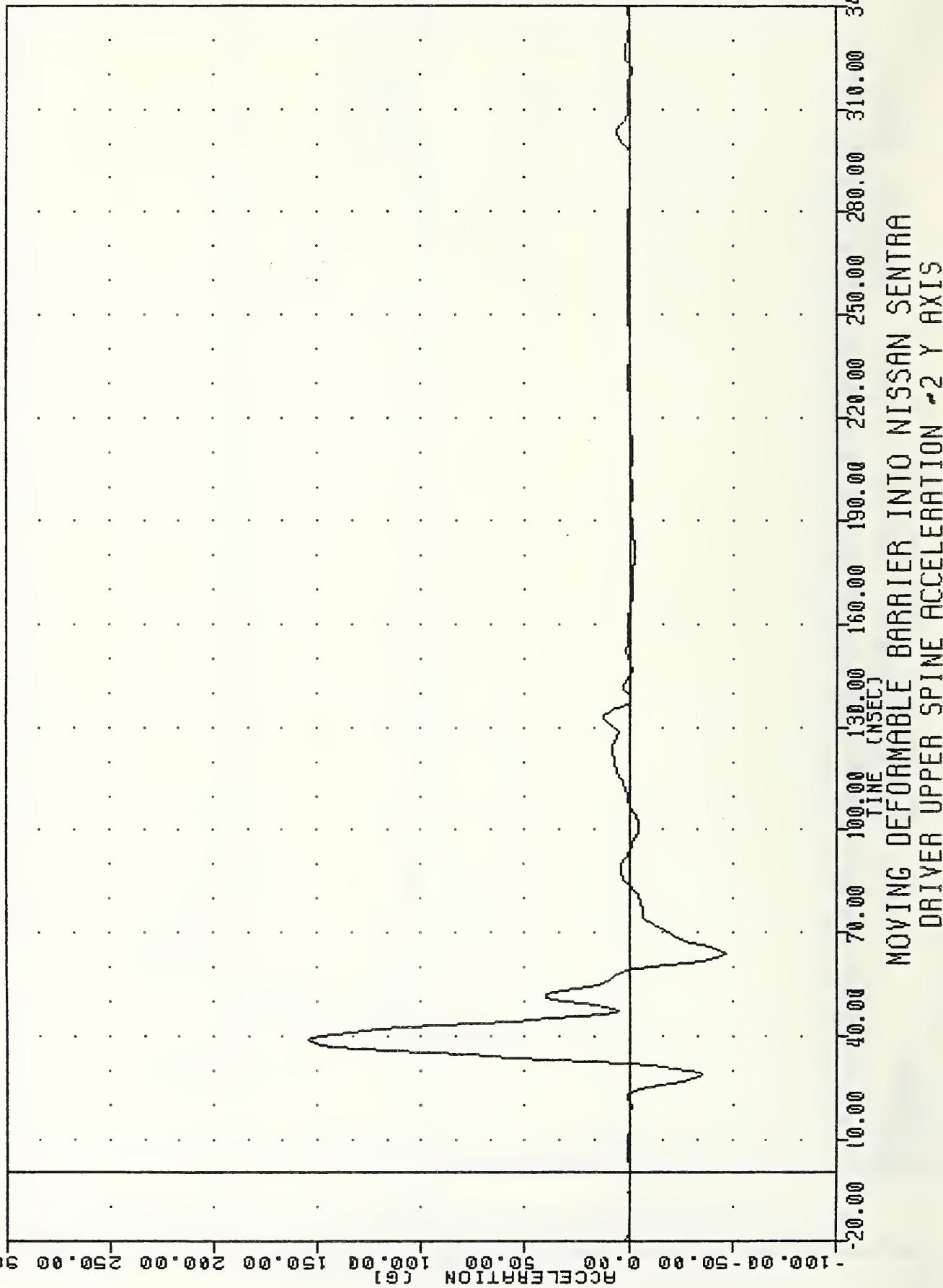


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER UPPER SPINE ACCELERATION Y AXIS

PLOT DATE 9-MAY-85 10:25:49

VAT  
SI PROTECTION PROD VEH  
85120000000  
T01Y6A

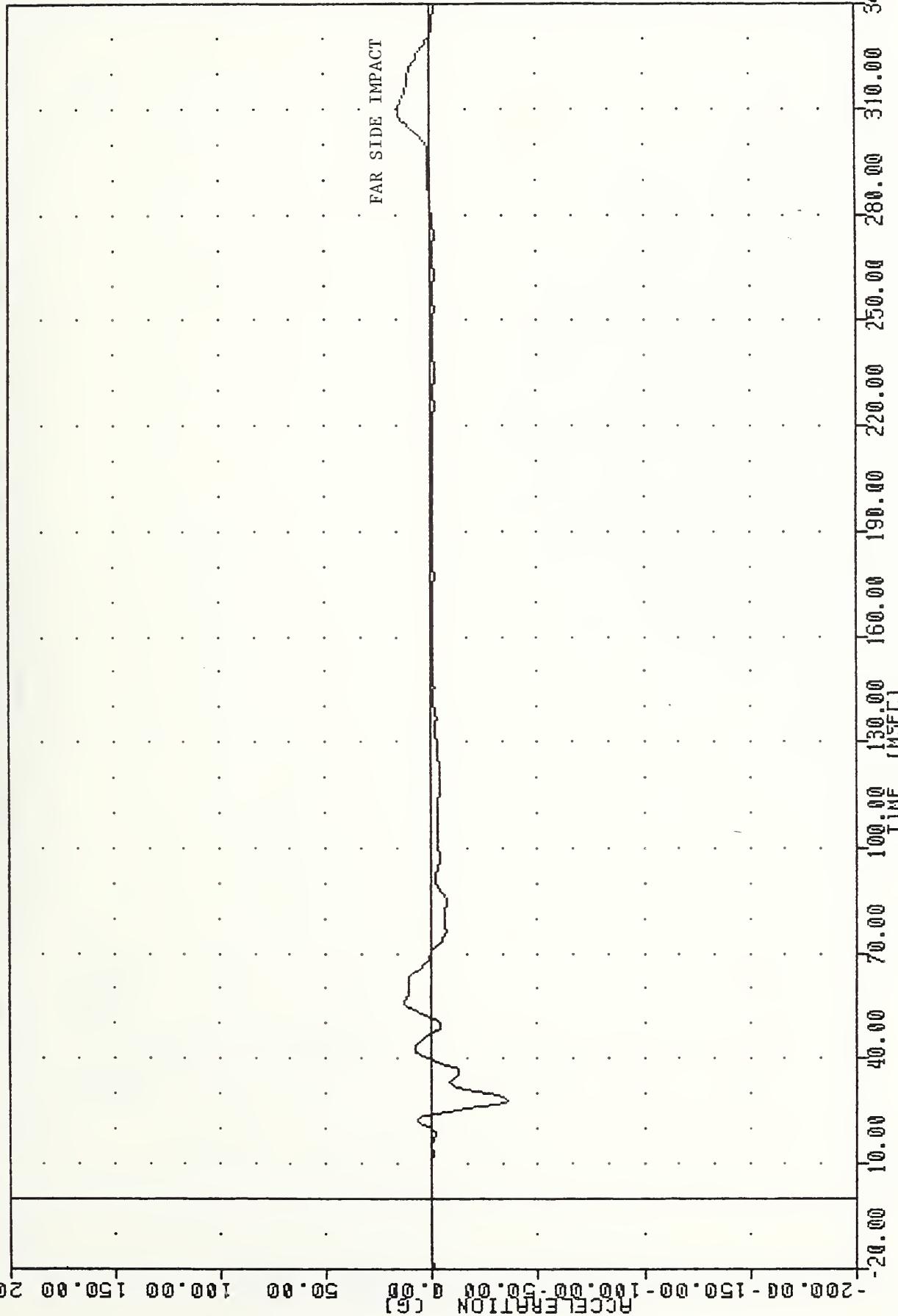
FILTER = HSRI 136 / 189 / -50  
MIN, MAX VALUES = -46.76 e 63.75 , 154.40 e 38.75



VRT , 850430  
SI PROTECTION PROD YEH  
851200000000  
T01761

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = -35.95 & 28.13 , 15.52 & 309.38

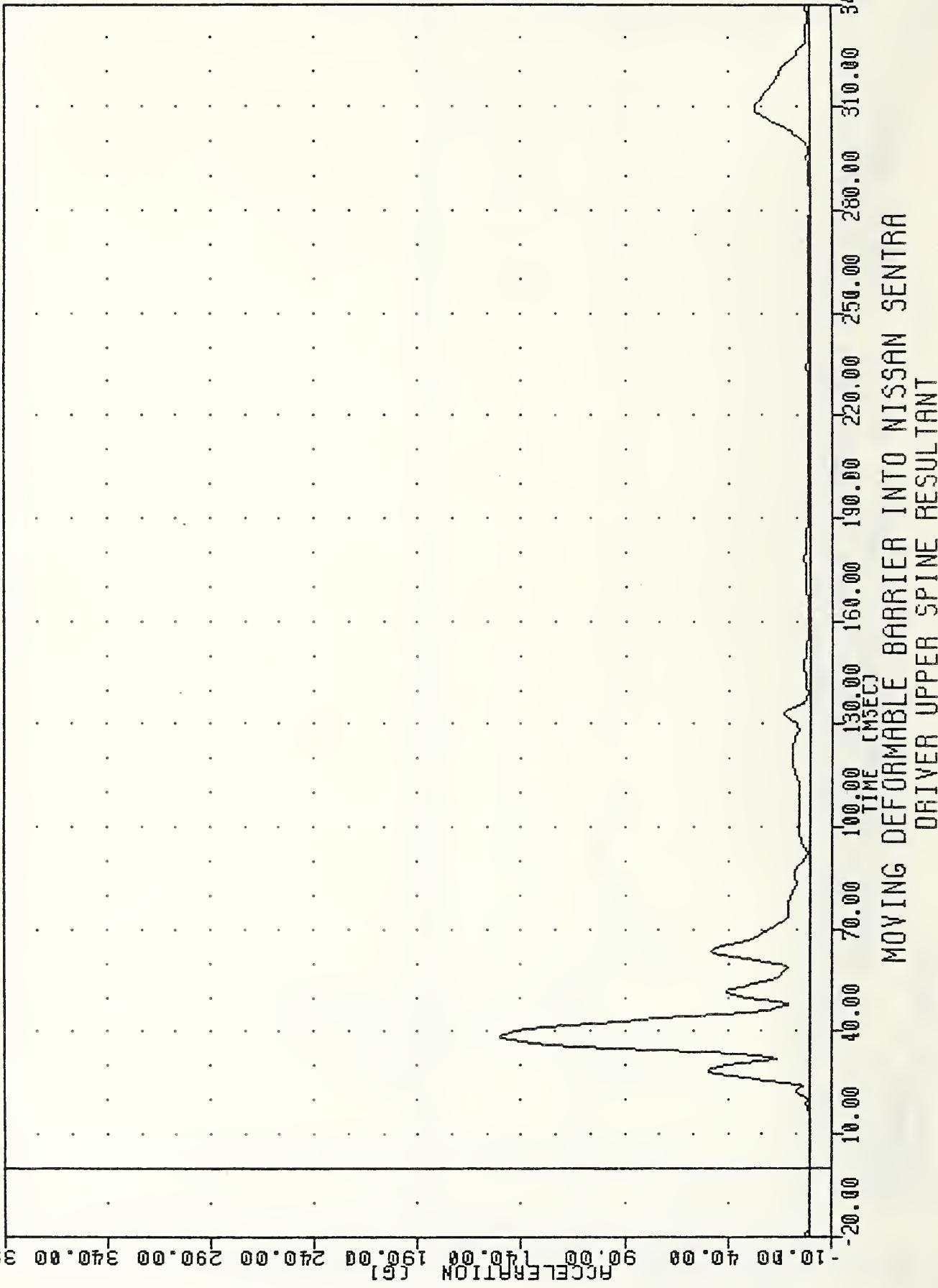


Moving deformable barrier into Nissan Sentra  
Driver upper spine acceleration z axis

VRT  
SI PROTECTION PROD VEH  
85120000000  
T01RG1

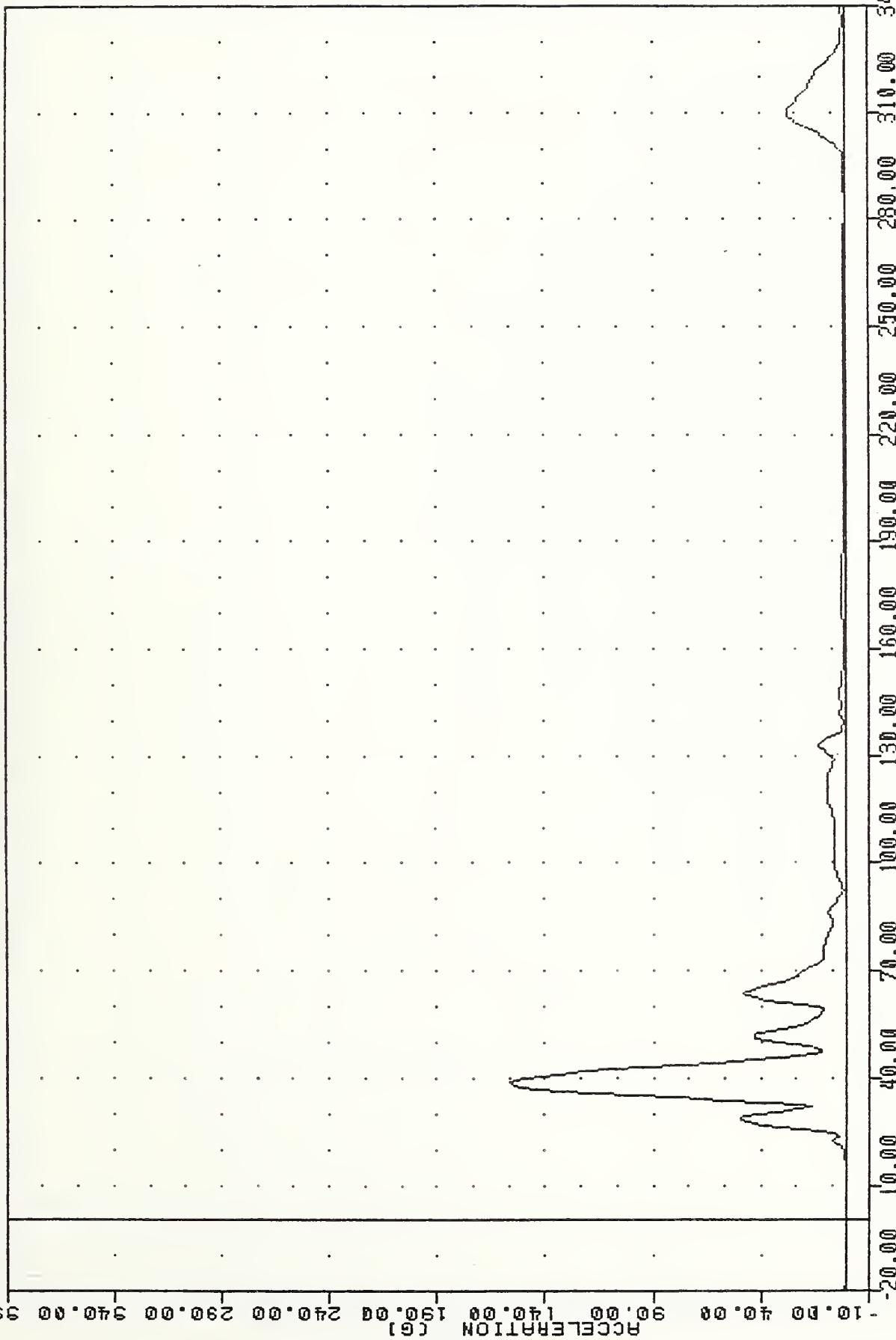
PL01 DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/  
MIN, MAX VALUES = 0.09@ -4.36 , 149.98 @ 38.75



VAT 850430  
SI PROTECTION PROD YEH  
85120000000  
T01RGA

PLT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/-50  
MIN. MAX VALUES = 0.088 -4.36 155.87 & 38.75



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME [msec]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER UPPER SPINE RESULTANT USING T01YGA

VRT  
SI PROTECTION PROD VEH  
85120000000  
T01YV1

PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSRI 136/  
MIN. MAX VALUES = -3.958 31.88 , 29.93 & 58.75

-20.00 -10.00 10.00 20.00 30.00 40.00 50.00 60.00  
VELOCITY (MPH)

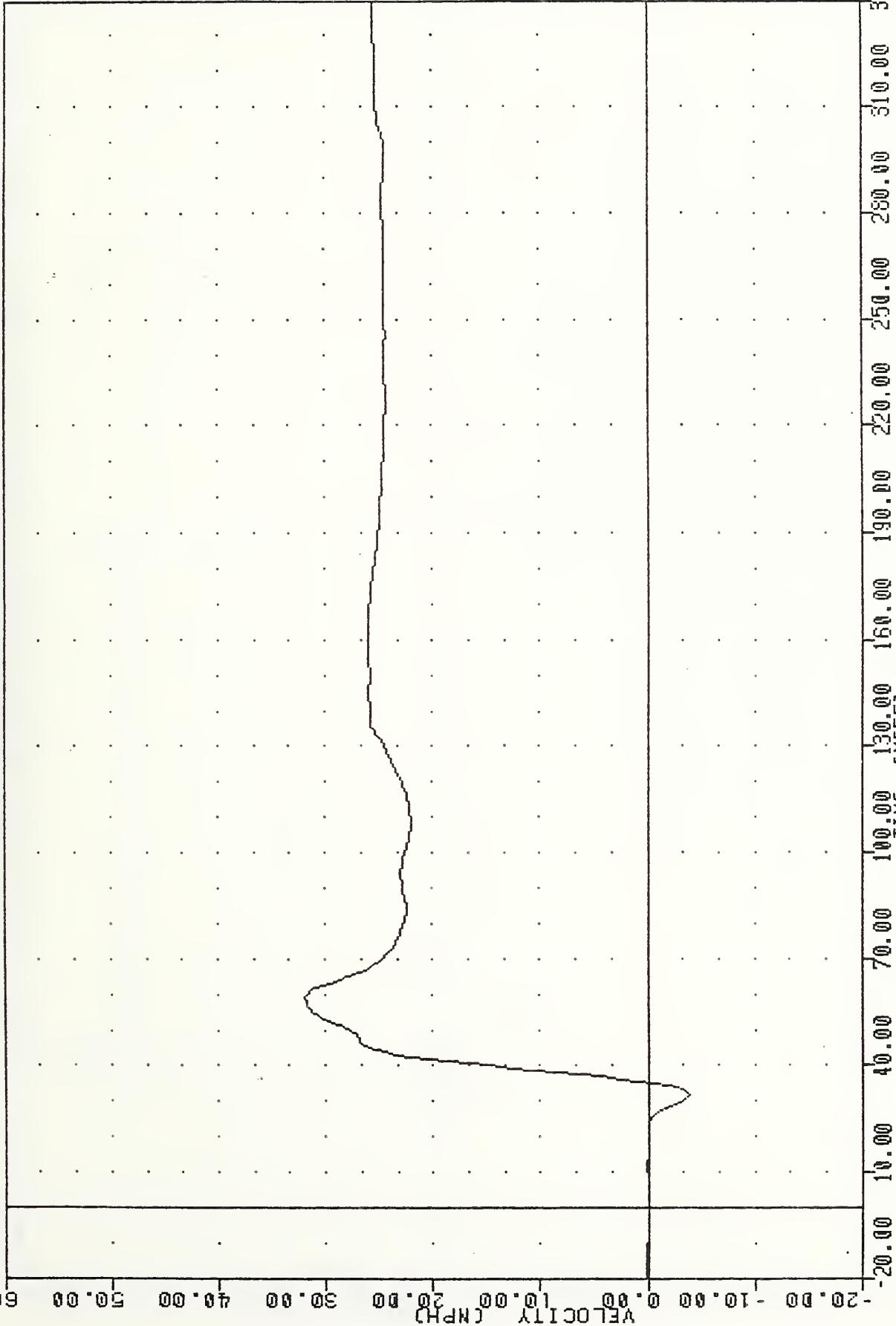
B-12

TIME (MSEC)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING T01YG1

VRI , 85043@  
SI PROTECTION PROD VEH  
851200000001  
T01YVA

PLOT DATE 9-MAY-85 10:27:48

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -3.82@ 31.86 , 31.86 @ 58.75

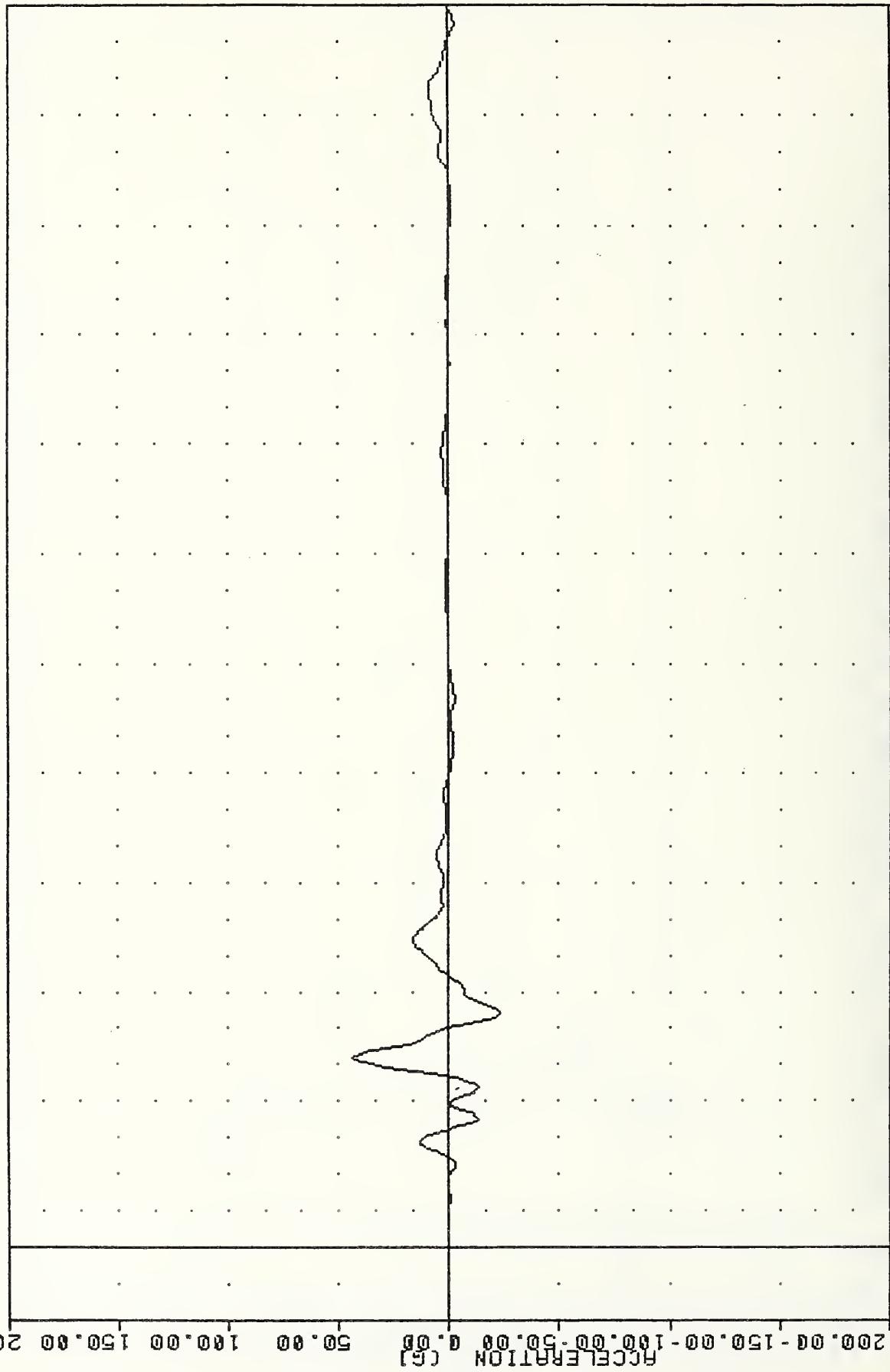


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING T01YGA

VRT  
SI PROTECTION PROD VEH  
851200000000  
112XG1

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -23.478 64.38 , 43.47 & 51.68

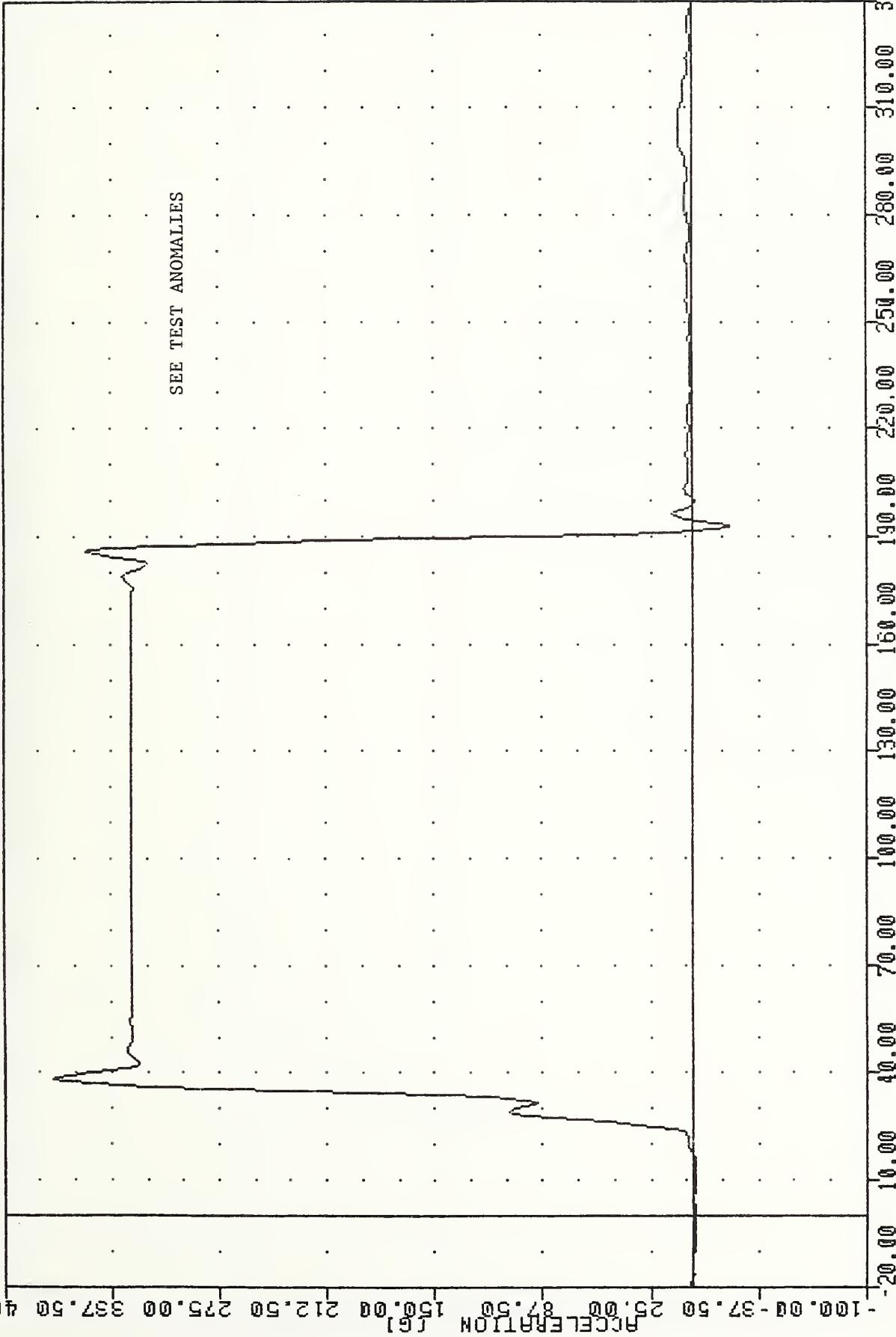


-200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00 150.00 200.00  
ACCELERATION (g's)  
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME (msec)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LOWER SPINE ACCELERATION X AXIS

VRT  
SI PROTECTION PROD VEH  
85120000000  
T12Y61

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/-50  
MIN. MAX VALUES = -21.32@ 192.50 , 372.27 @ 38.13

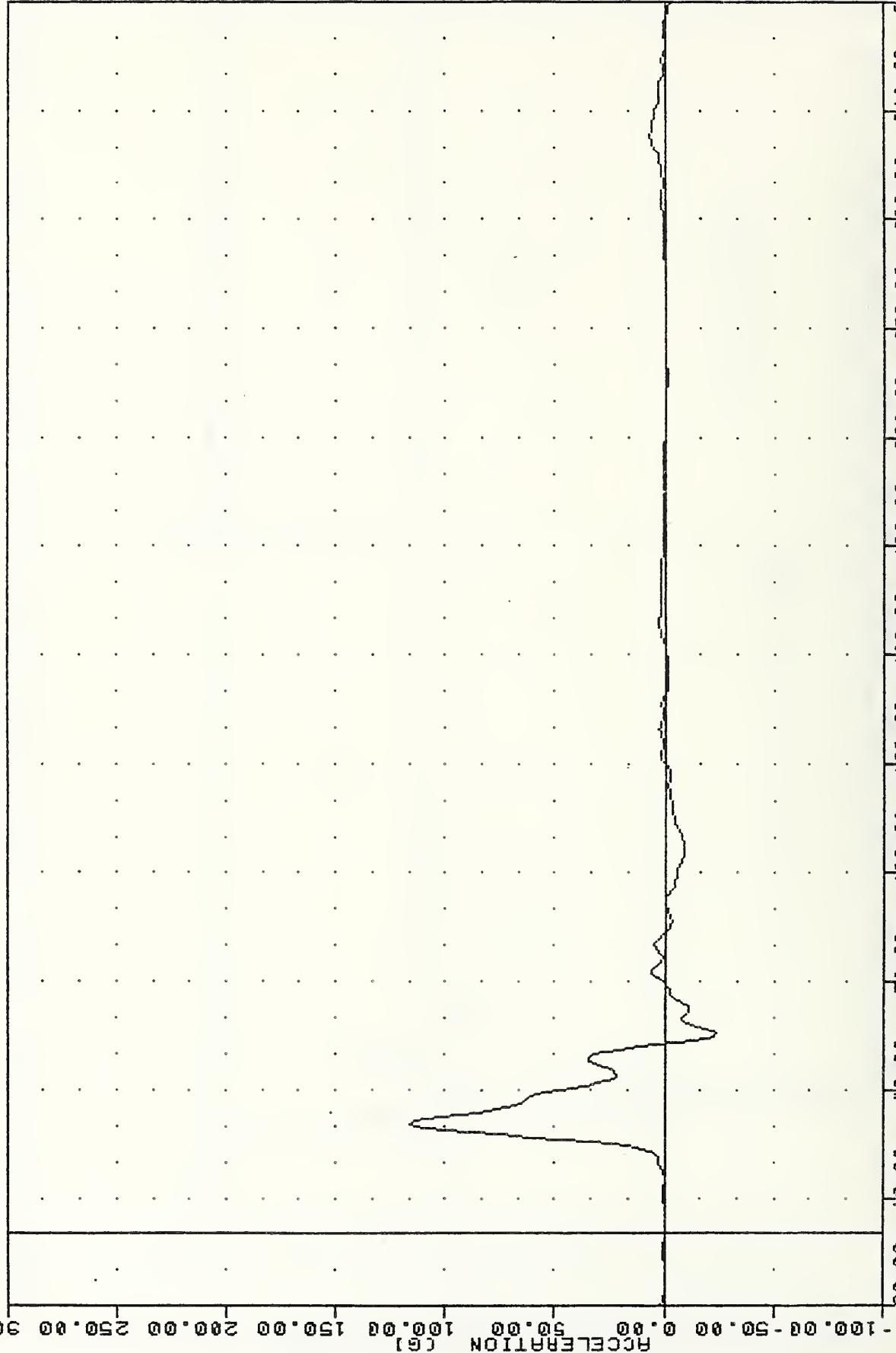


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LOWER SPINE ACCELERATION Y AXIS

VAT  
SI PROTECTION PROD YEH  
8512000000  
T12YEAR

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = -23.498 55.63 115.73 6 300.62

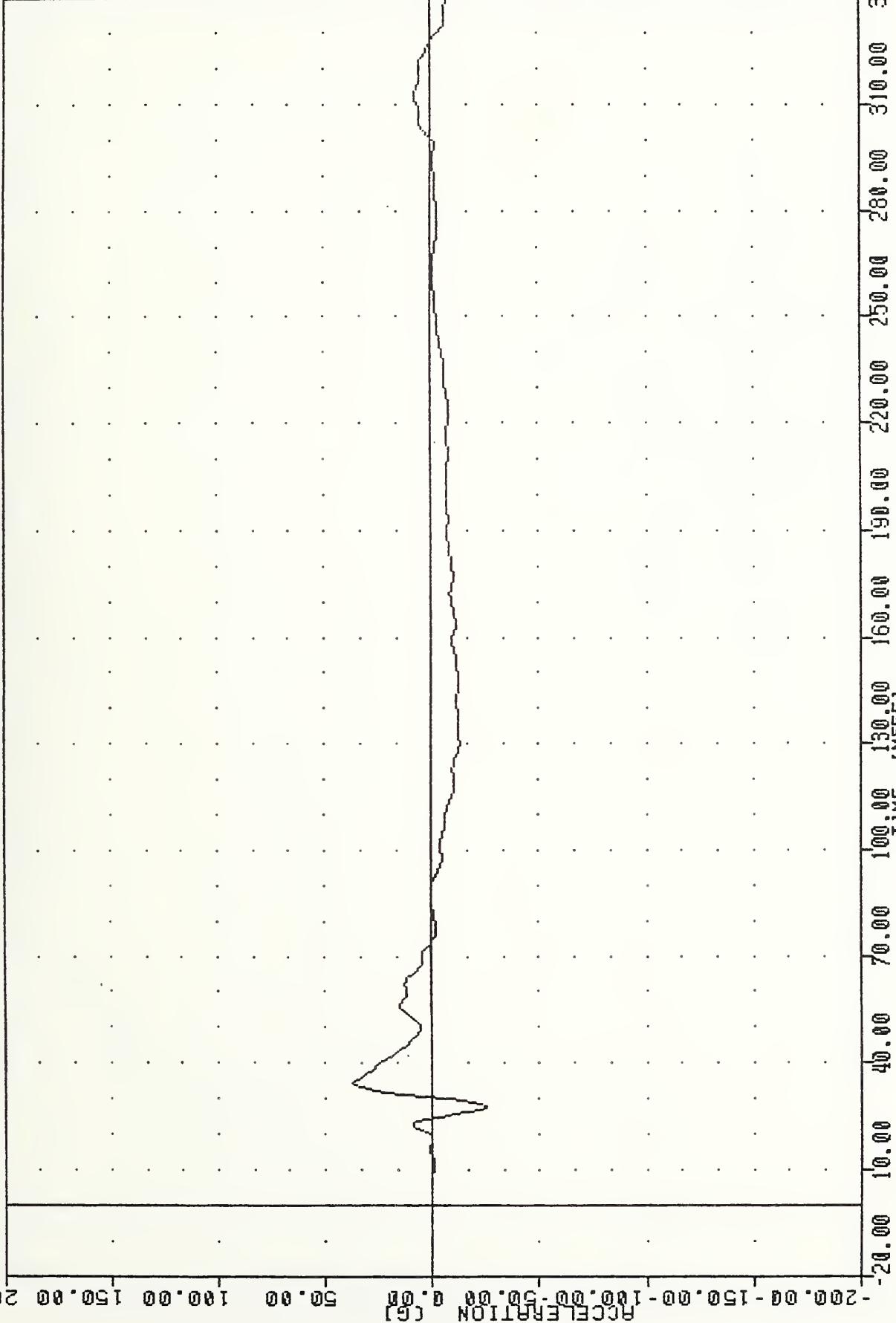


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LOWER SPINE ACCELERATION #2 Y AXIS

VRT  
SI PROTECTION PROD VEH  
851200000000  
112161

PLT DATE 9-MAY-85 10:25:49

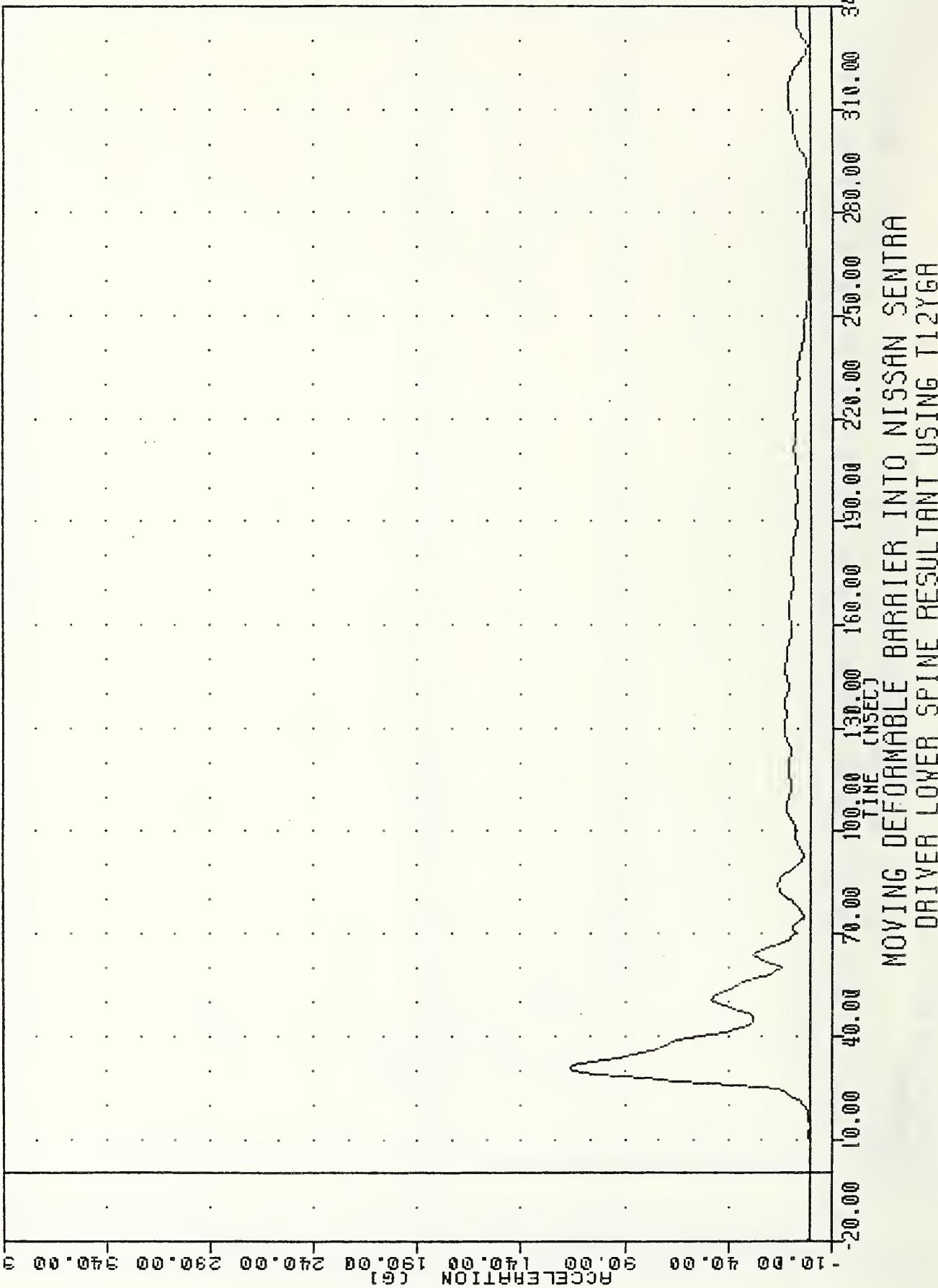
FILTER = HSRI 136/ 189/ -50  
MIN. MAX VALUES = -25.488 27.500 36.938 34.388



MOVING DEFORMABLE BARRIER INTO MISSION SENTRA  
DRIVER LOWER SPINE ACCELERATION Z AXIS

VAT  
SI PROTECTION PROD VEH  
8512000000  
T12REGA

PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = 0.098 -7.500 116.11 & 30.62

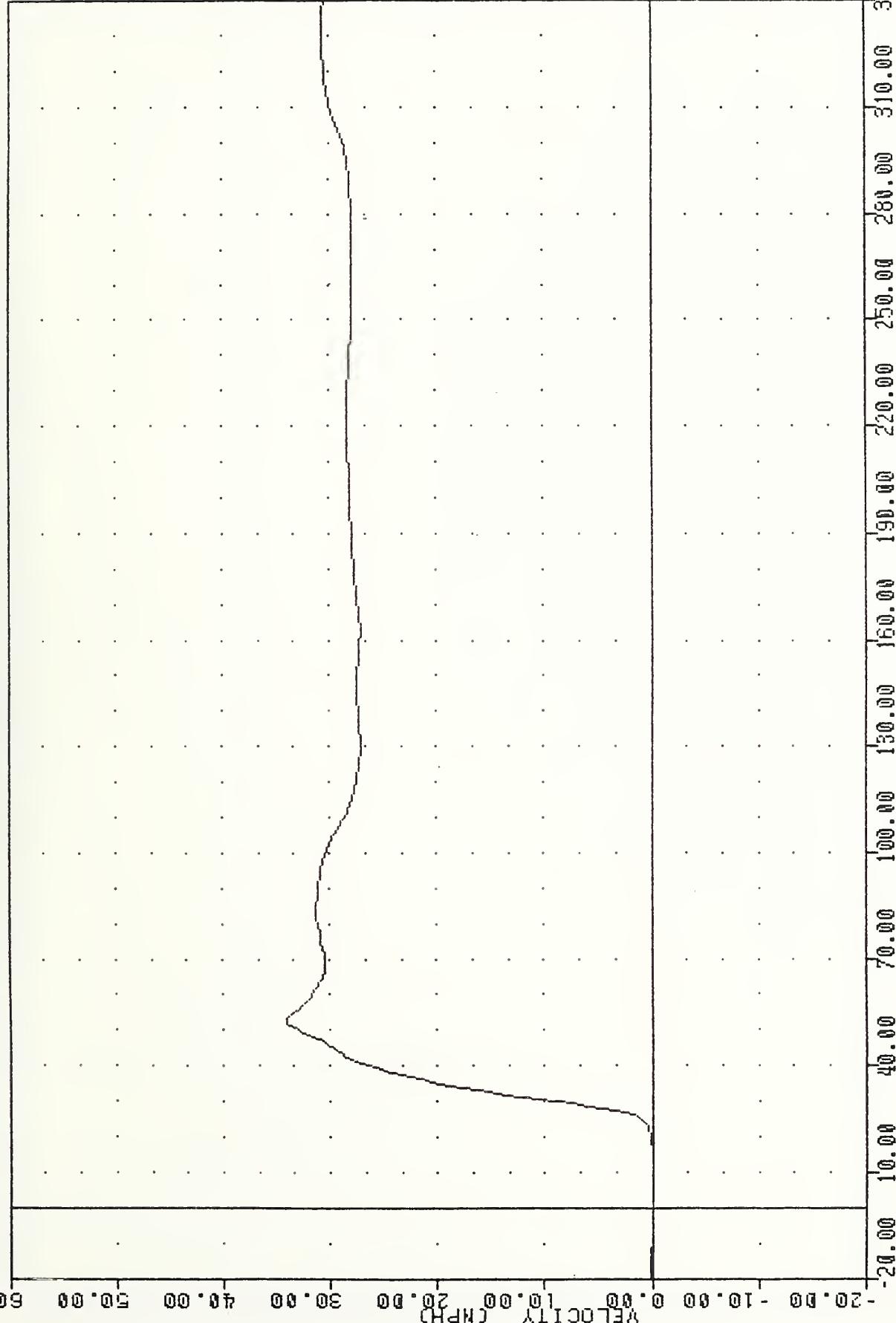


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LOWER SPINE RESULTANT USING T12YGA

VRT  
SI PROTECTION PROD VEH  
85120000000  
112YVA

PLOT DATE 9-MAY-85 10:27:48

FILTER = HSRI 136/-189/-50  
MIN, MAX VALUES = -0.038 8.13 , 34.06 & 52.50

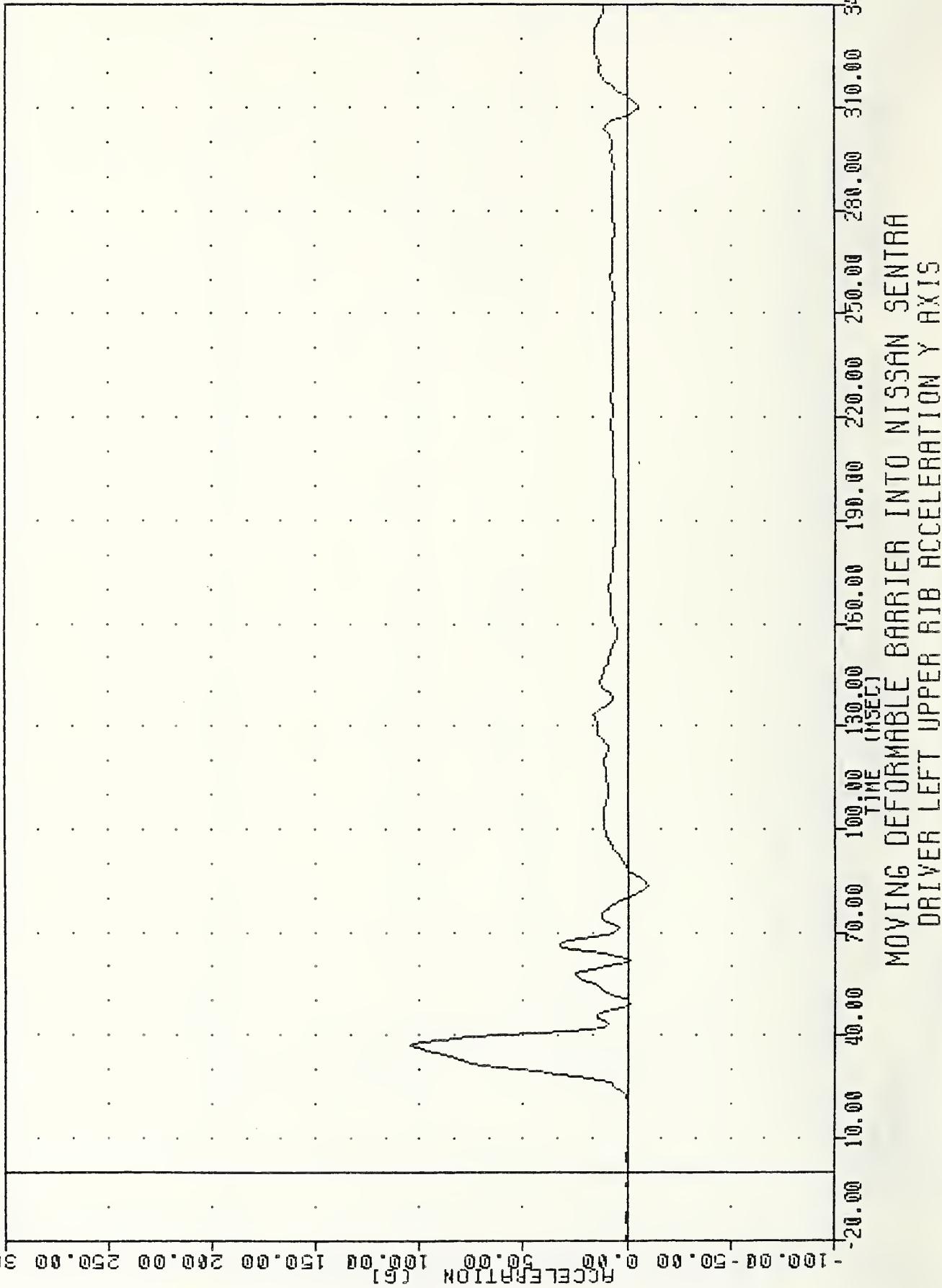


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING T12 YGA

VRT  
SI PROTECTION PROD VEH  
85120000000  
LUFY61

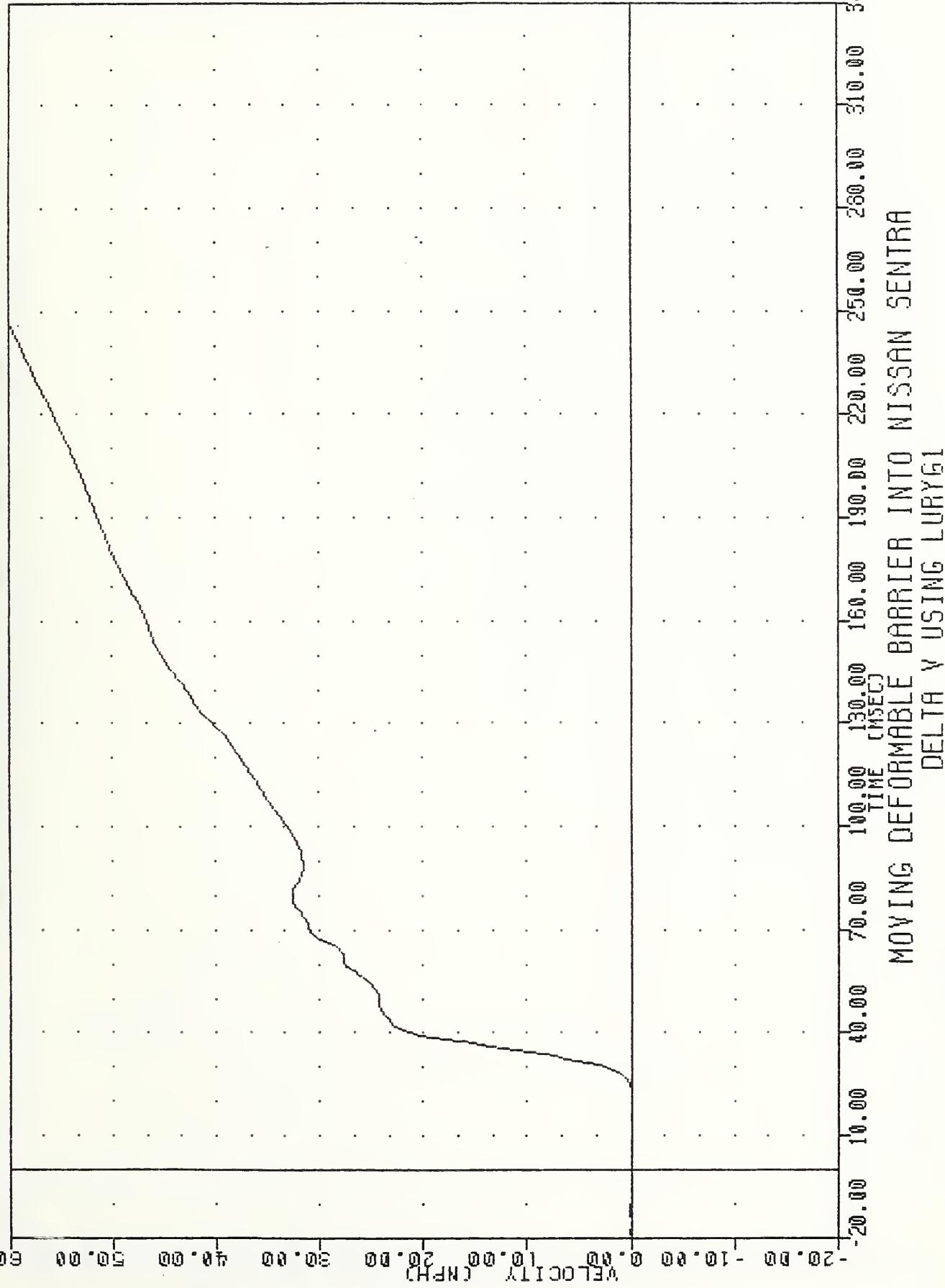
PLOT DATE 9-MAY-85 10:25:49

FILTER = HSR1 136/ 189/-50  
MIN, MAX VALUES = -9.75 & 83.75 , 104.32 & 36.88



YRT  
SI PROTECTION PROD VEH  
851200000000  
LURYY1

PLT DATE 9-MAY-85 10:27:48  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.10 & 21.88 , 75.89 & 340.00

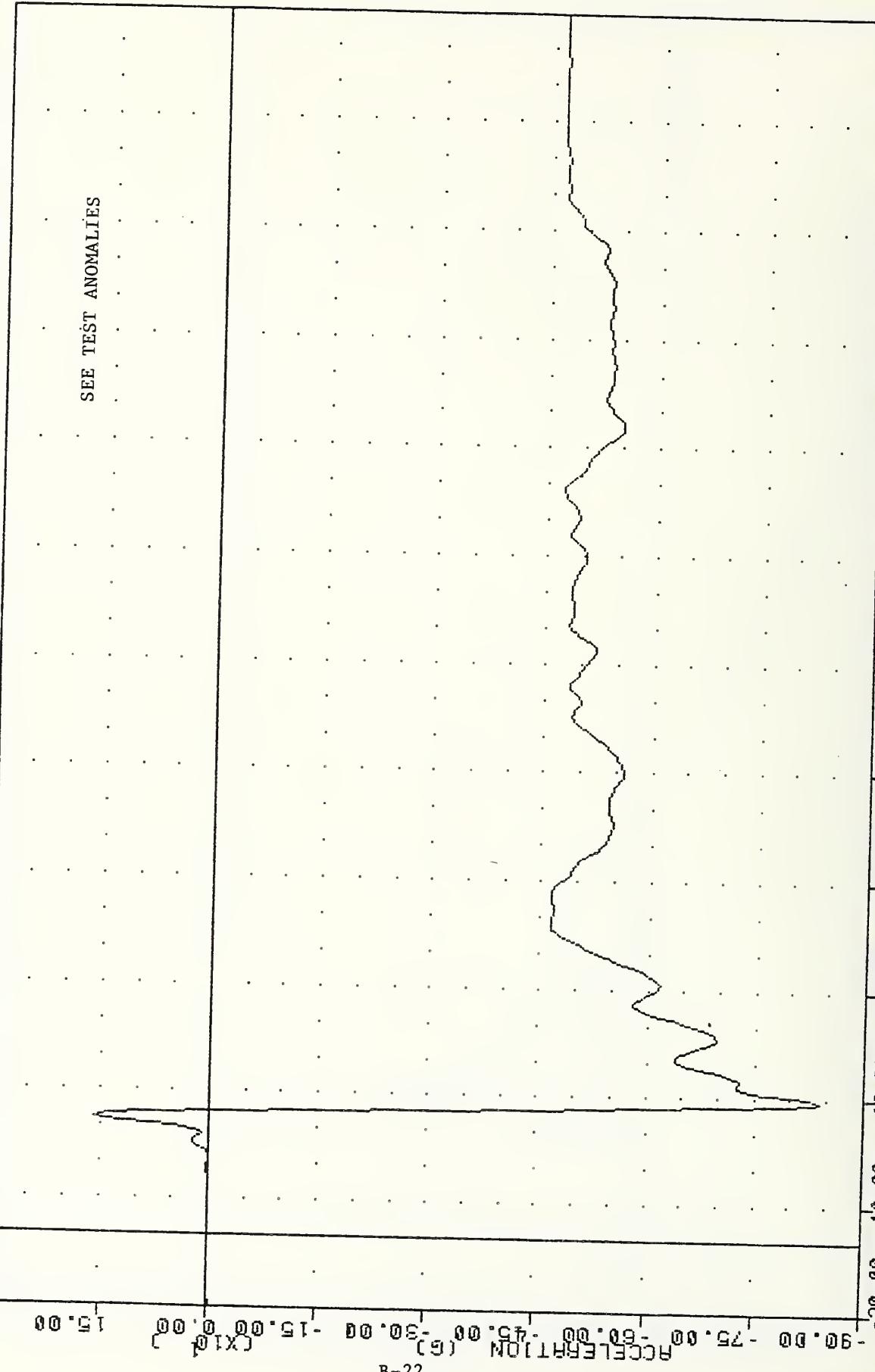


VRI  
SI PROTECTION PROD VEH  
85120000000  
LURYGA

PLT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/ -50  
MIN. MAX VALUES = -840.45 & 39.38 , 157.97 & 32.50

SEE TEST ANOMALIES

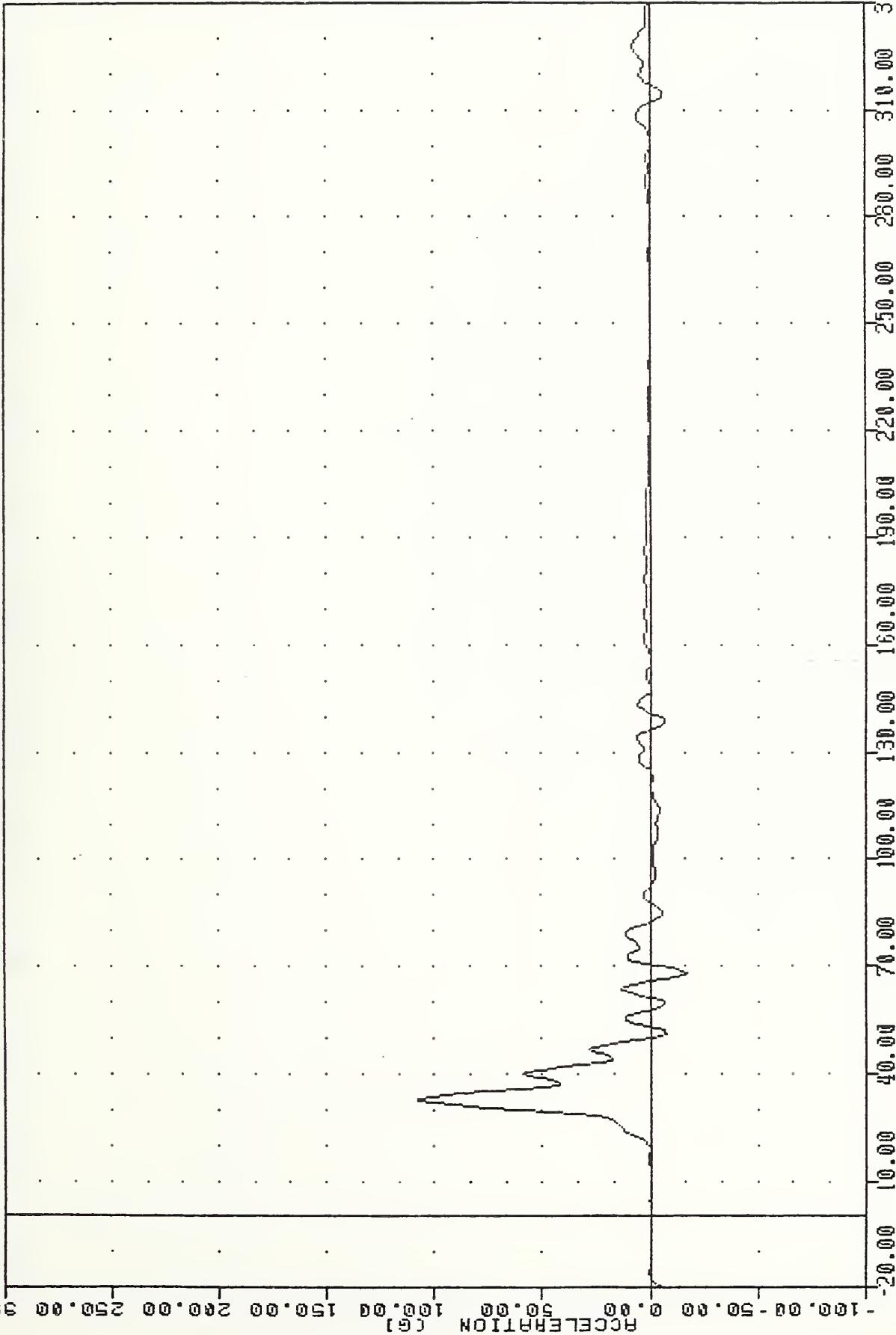


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LEFT UPPER RIB ACCELERATION 2 Y AXIS

VAT 850430  
SI PROTECTION PAD YEH  
85120000000  
LLRY61

PLOT DATE 9-MAY-85 10:25:49

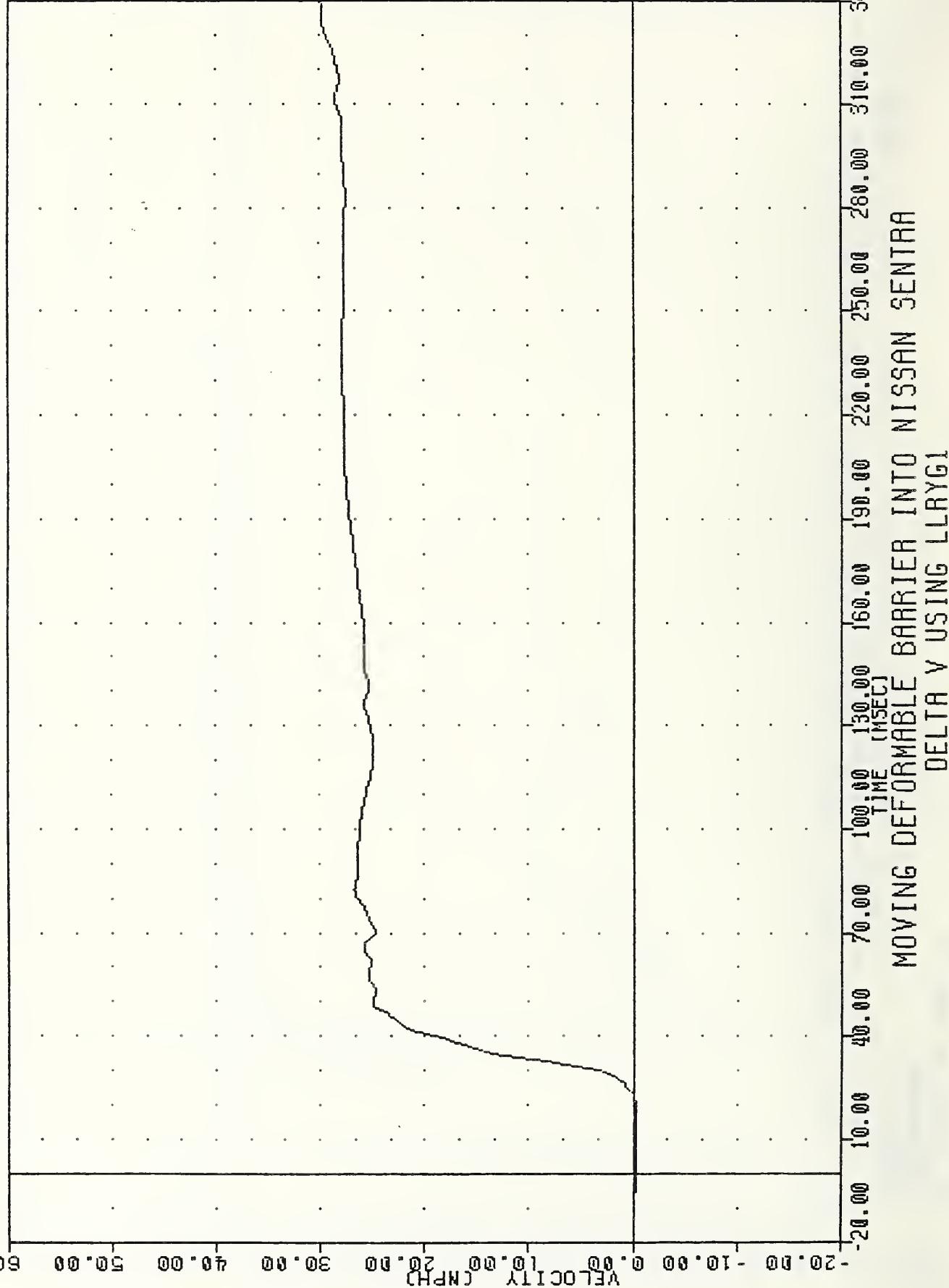
FILTER = HSRI 136/ 189/-50  
MIN. MAX VALUES = -16.94 & 68.13 , 107.94 & 32.50



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME [mSEC]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LEFT LOWER RIB ACCELERATION Y AXIS

YRT  
SI PROTECTION PROD VEH  
85120000000  
LLRYV1

PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.328 14.37 . 29.92 & 340.00

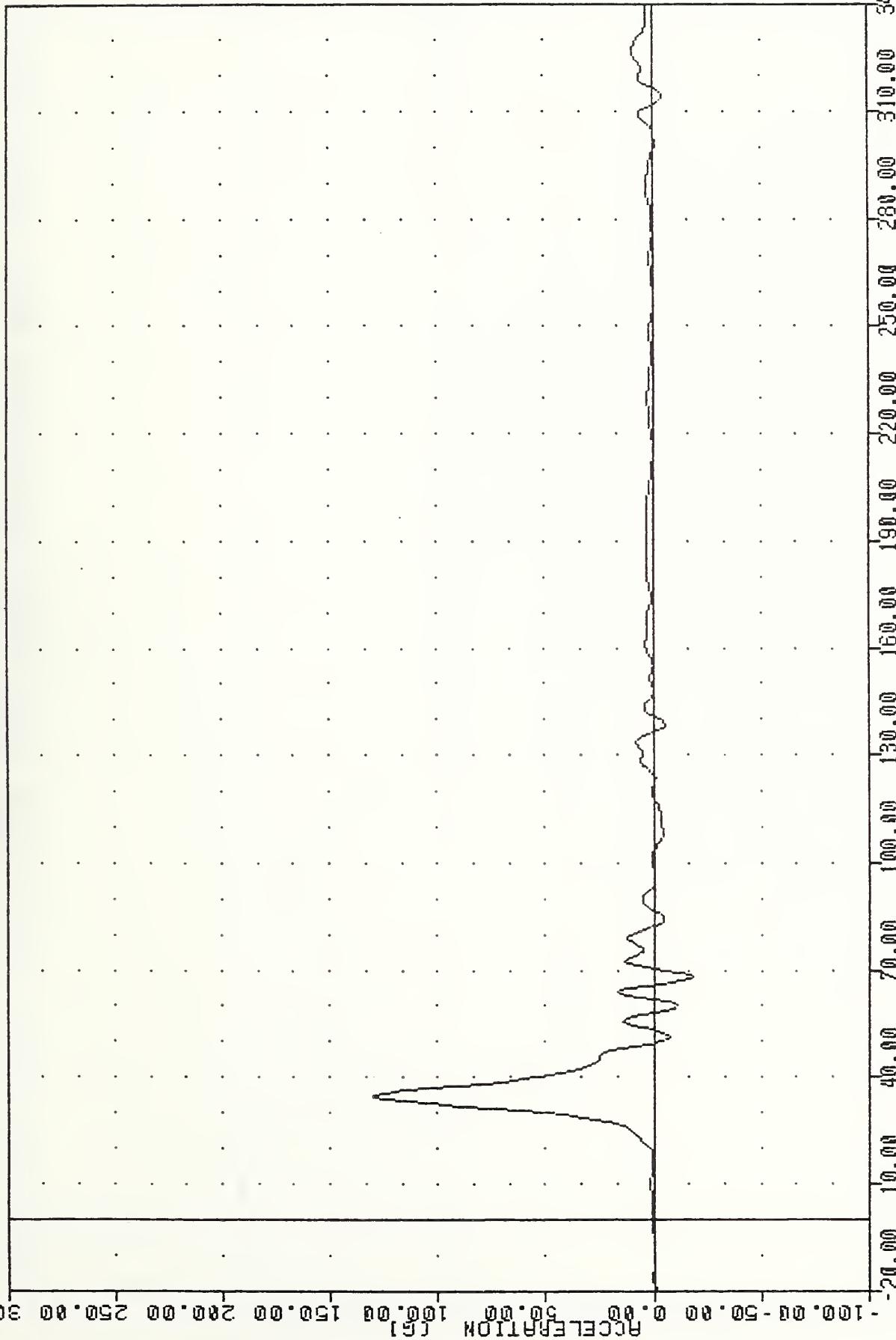


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING LLRYG1

VRT  
SI PROTECTION PROD VEH  
851200000000  
LLRYGA

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = -18.90 68.13 . 129.79 & 34.38

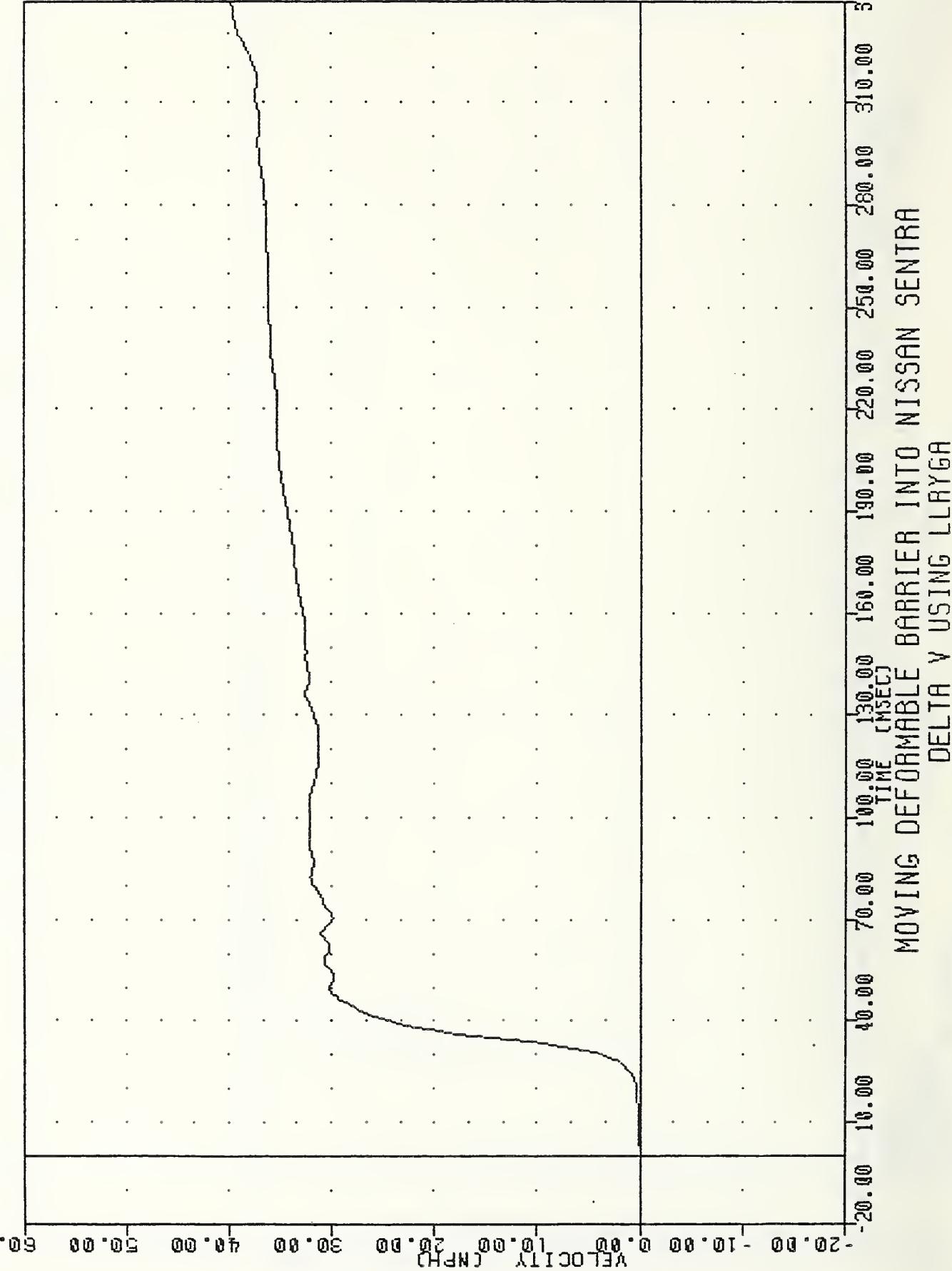


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LEFT LOWER RIB ACCELERATION #2 Y AXIS

VARI  
SI PROTECTION PROD VEH  
851200000000  
LLAYVA

PL01 DATE 9-MAY-85 10:27:48

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -0.118 -4.38 , 39.76 & 340.00



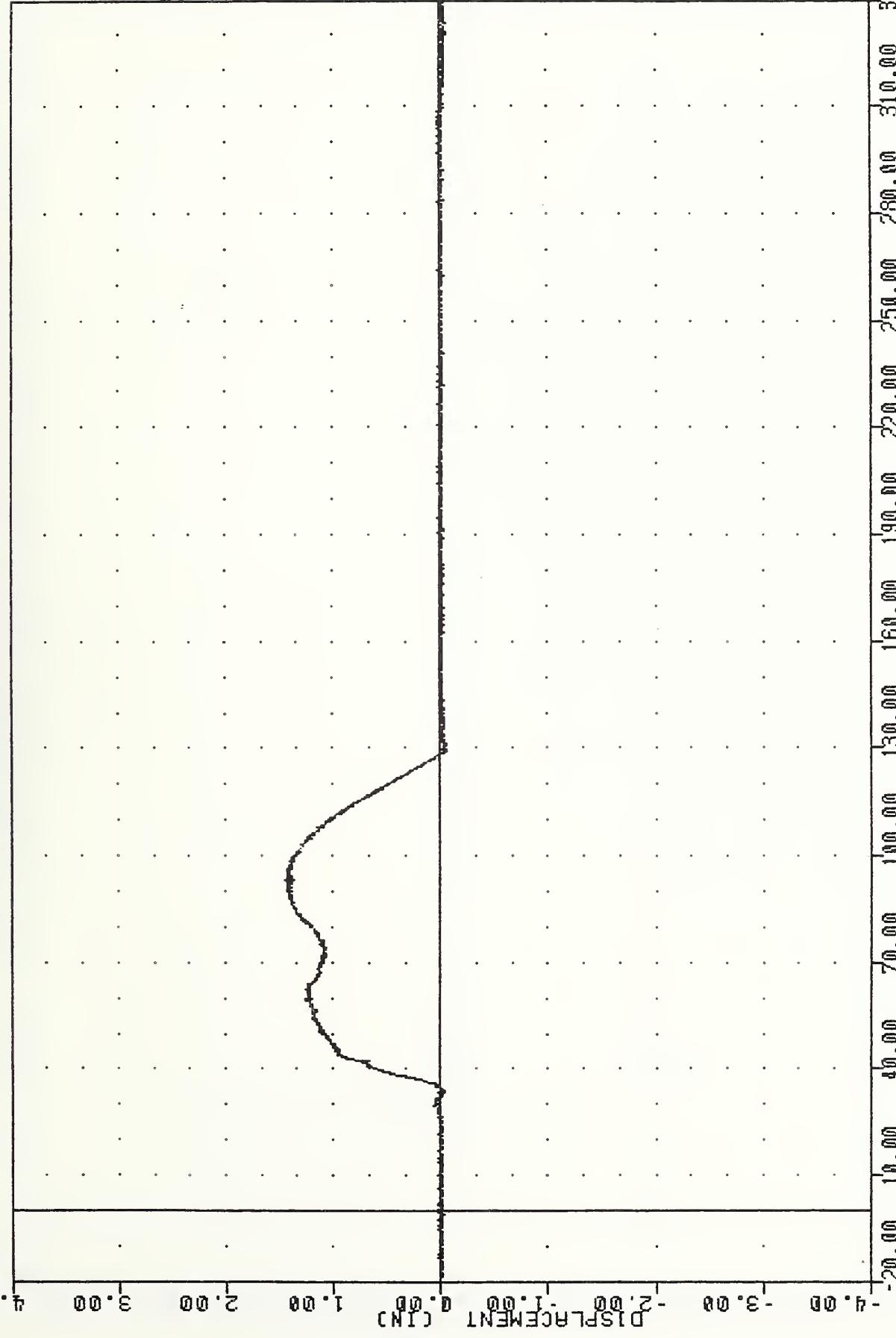
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING LLAYVA

VRT  
SI PROTECTION PROD VEH  
851200000000  
LRTY01

PLOT DATE 9-MAY-85

FILTER = ALPPF 1650/ 5217/-40  
MIN. MAX VALUES = -0.06@ 330.75 .

1.45 @ 93.13

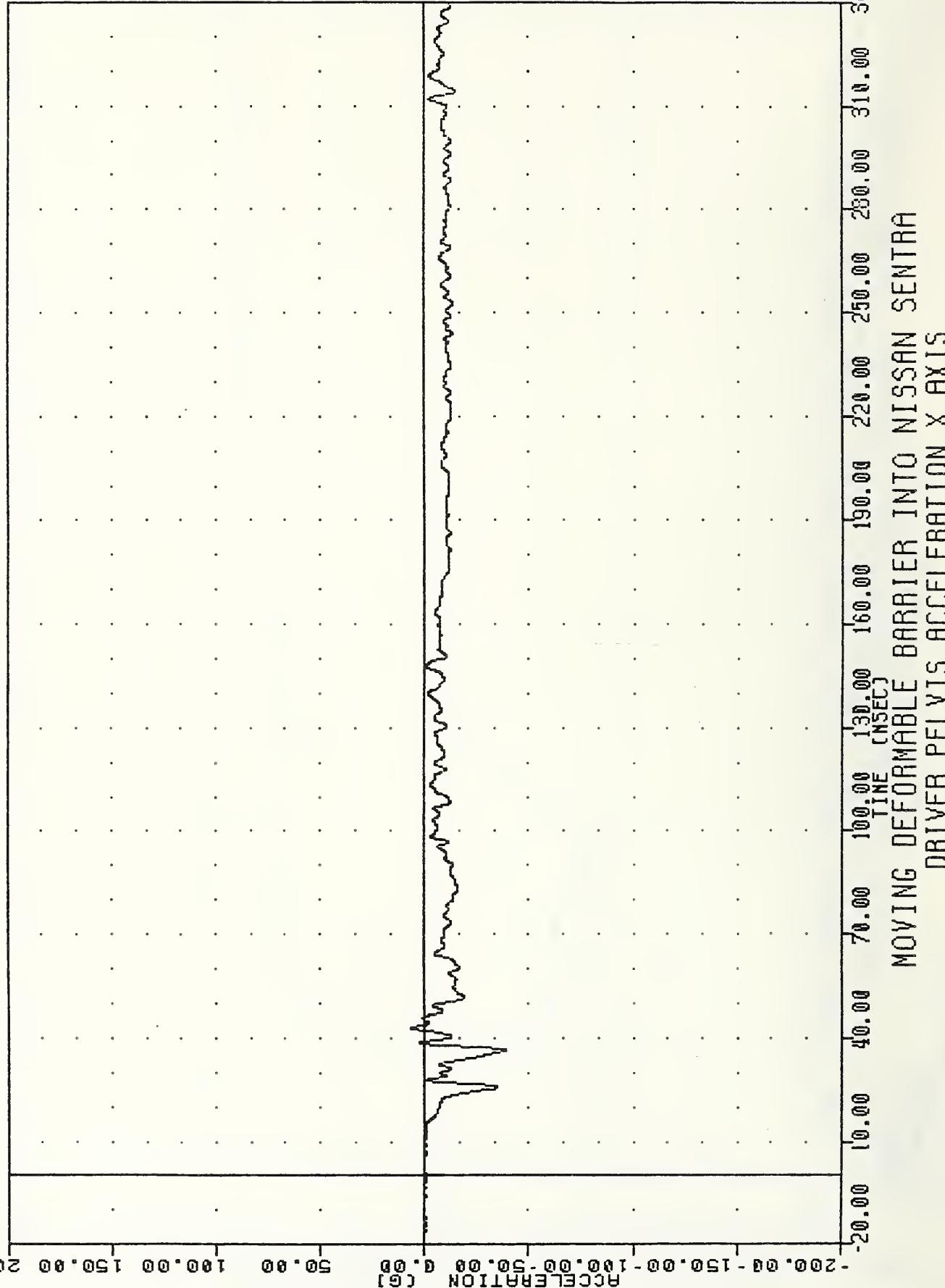


TIME [MSEC]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER LEFT RIB TO SPINE DISPLACEMENT INCHES

VRT  
SI PROTECTION PROD YEH  
8512000000  
PEVX61

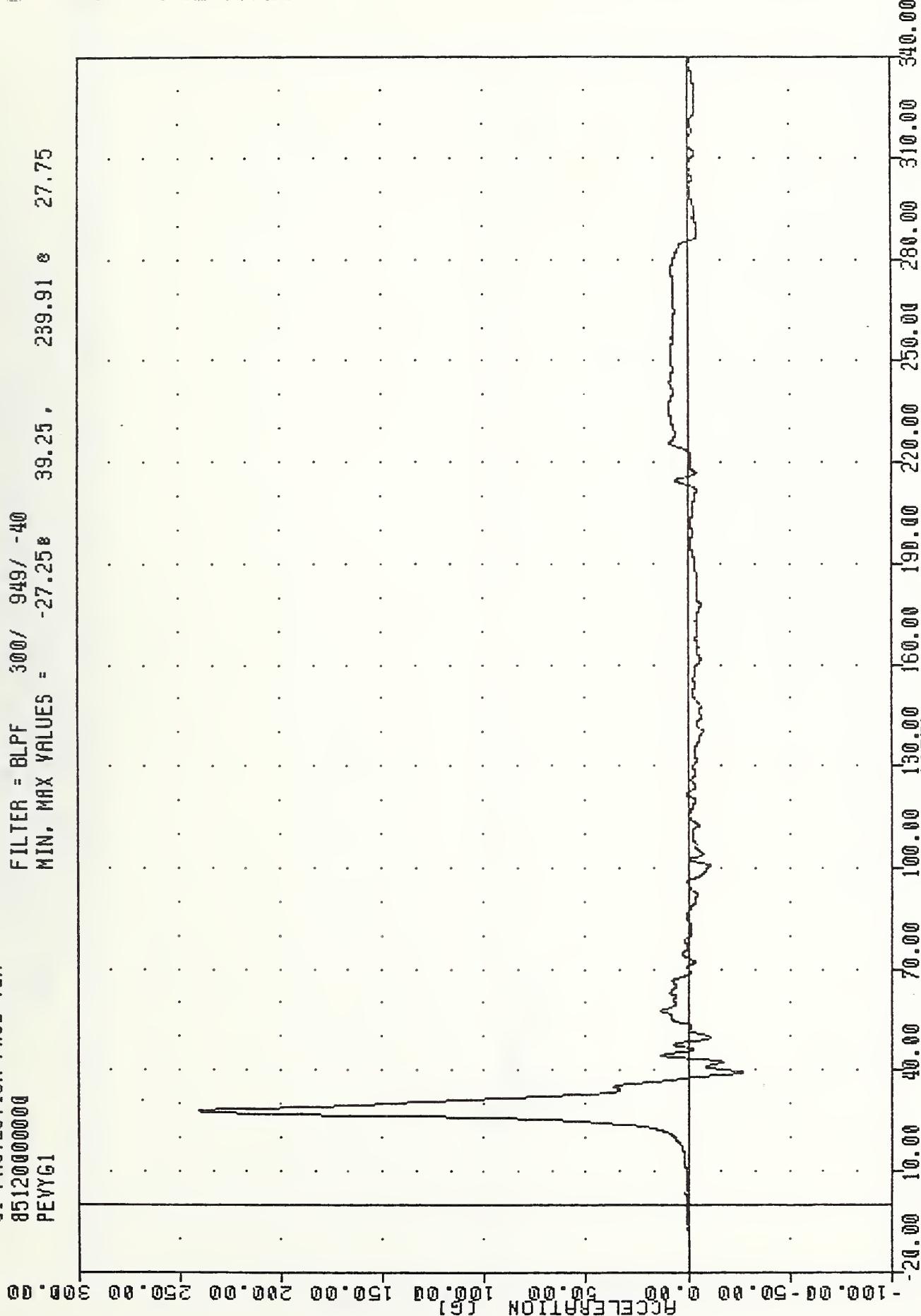
PLT DATE 9-MAY-85 10:28:49

FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = -39.02 & 36.38 . 6.63 & 42.88



VAT 850430  
SI PROTECTION PROD VEH  
85120000000  
PEVY61

PLOT DATE 9-MAY-85 10:28:49

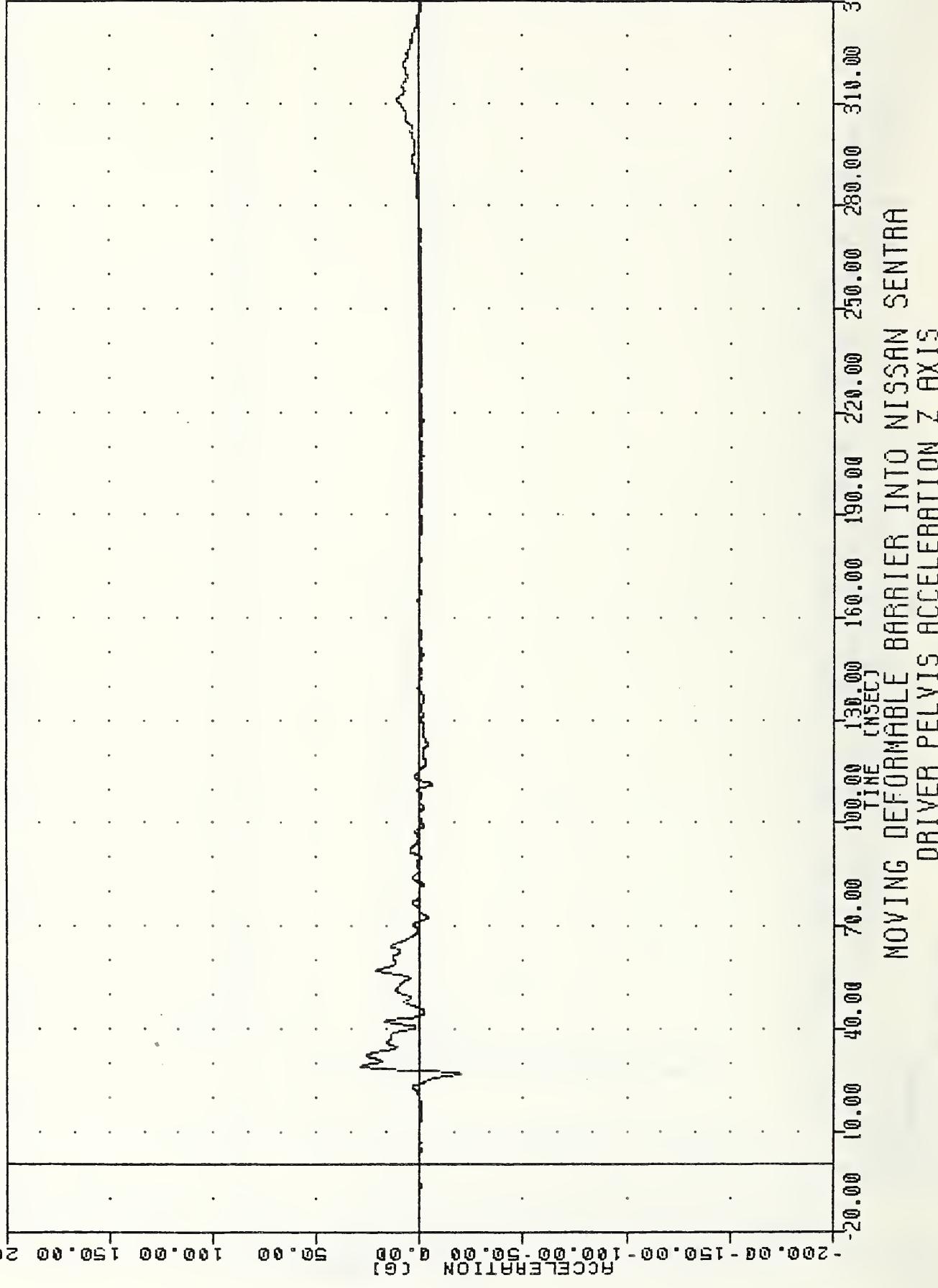


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER PELVIS ACCELERATION Y AXIS

VAT  
SI PROTECTION PROD VEH  
851200W00000  
PEVZ61

PLOT DATE 9-MAY-85 10:28:49

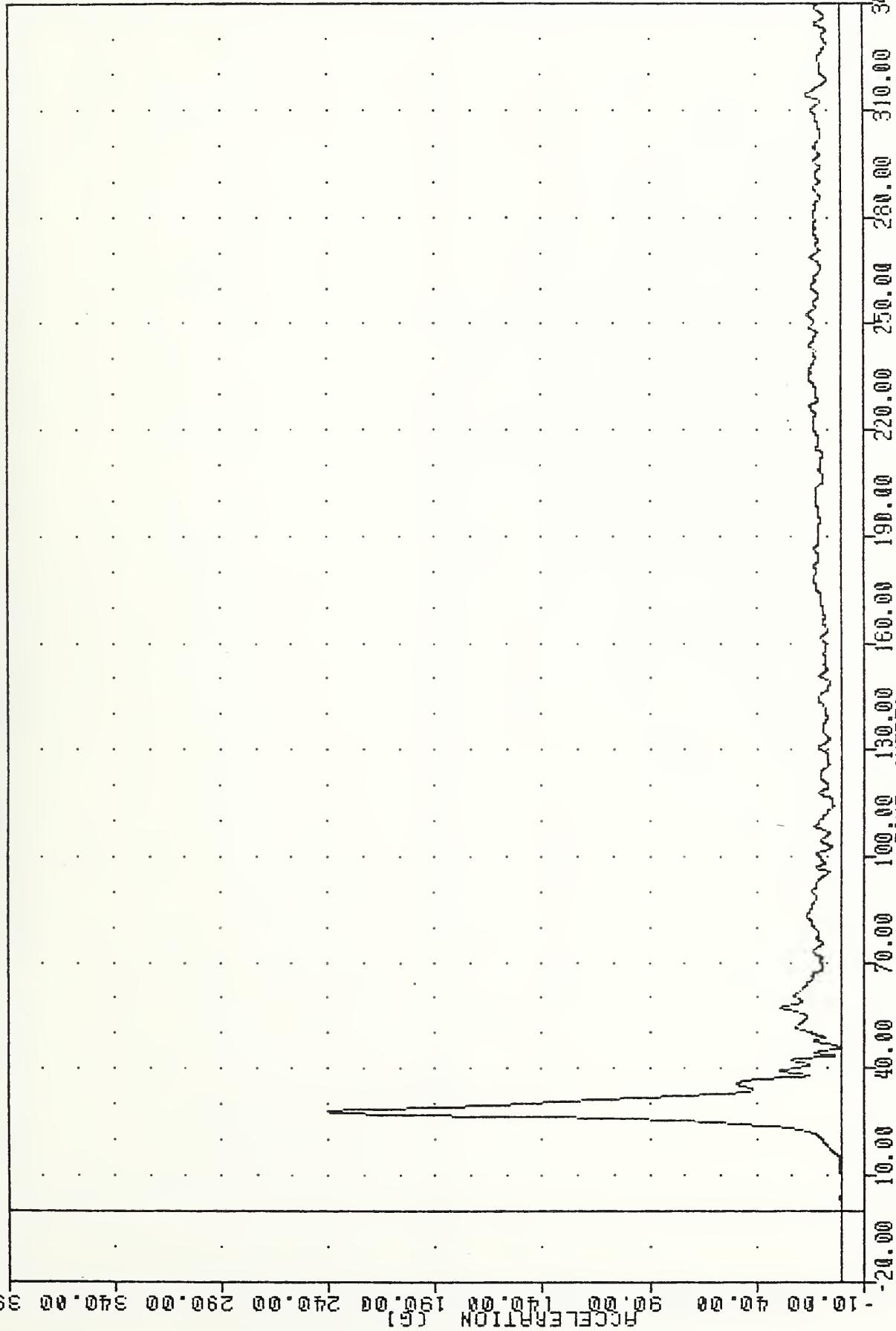
FILTER = BLPF 300/ 949/-40  
MIN, MAX VALUES = -19.61 & 26.88  
26.36 & 29.00



VAT , 850430  
SI PROTECTION PROD VEH  
85120000000  
PEVRG1

PLOT DATE 9-MAY-85 10:28:49

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = 0.078 -16.63 , 239.91 e 27.75

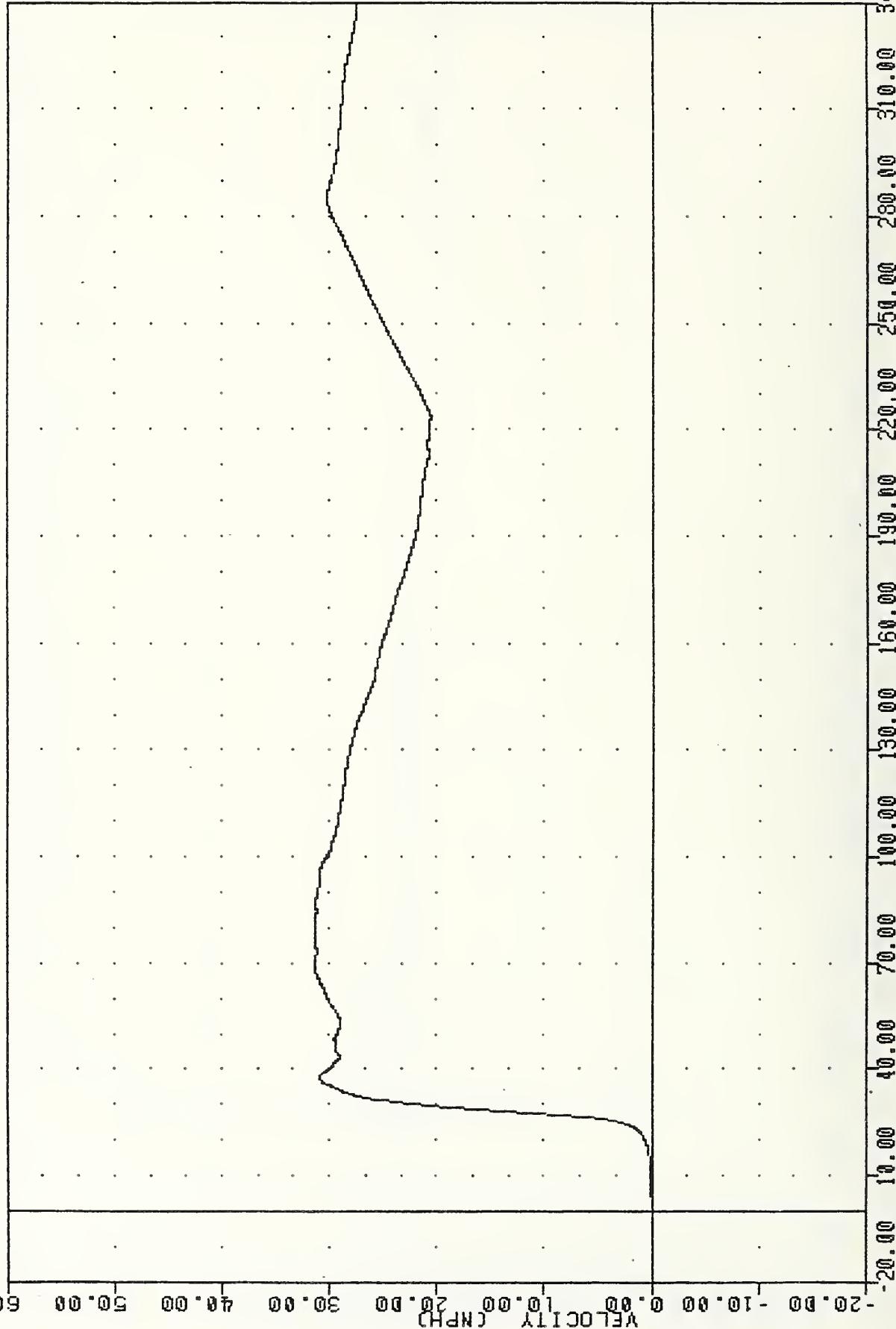


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DRIVER PELVIS RESULTANT

YRT  
SI PROTECTION PROD VEH  
85120000000  
PEYYV1

PL01 DATE 9-MAY-85 10:28:49

FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = -0.11e -7.88 , 31.34 e 79.38

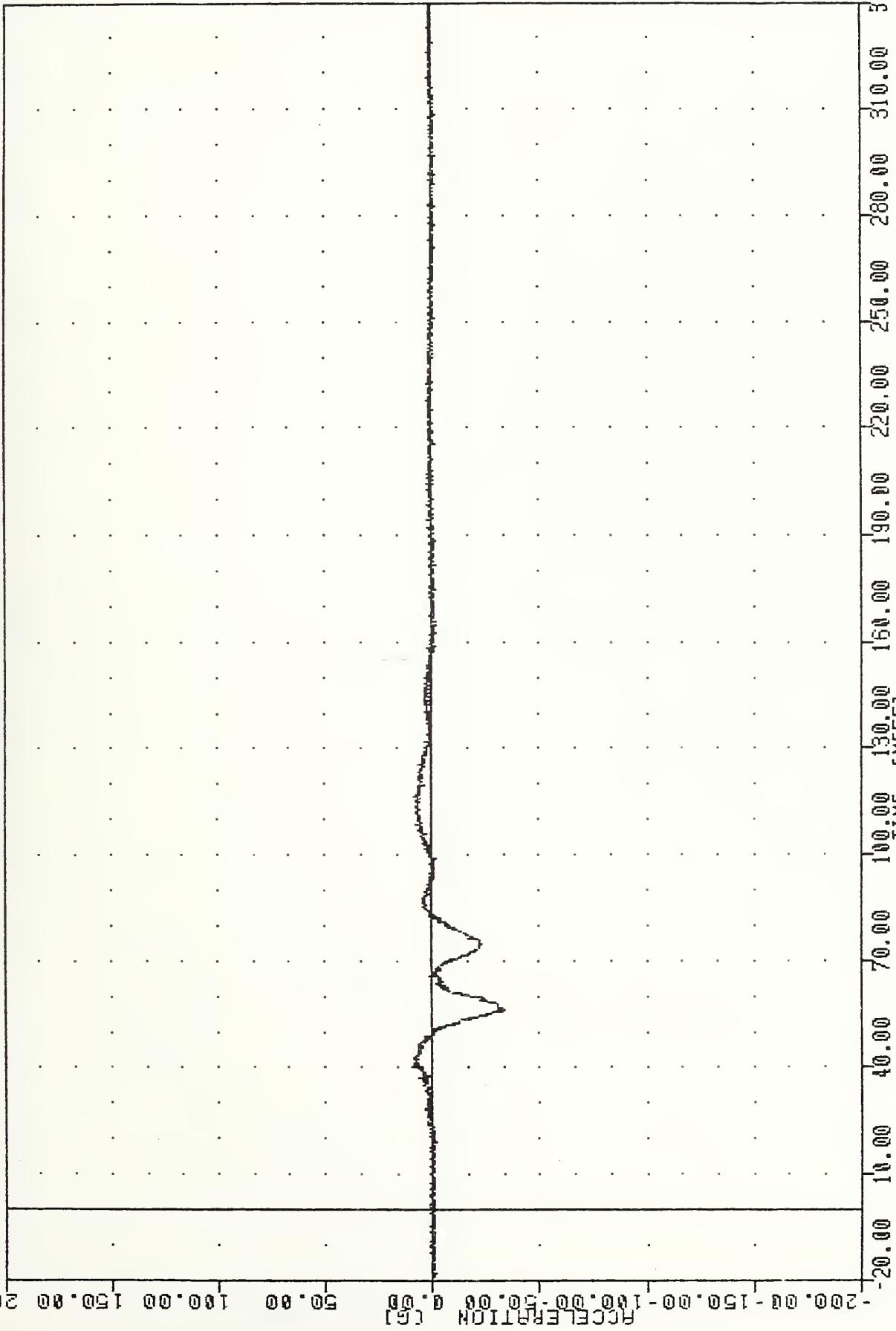


Moving deformable barrier into nissan sentra  
delta v using PEYYV1

VRI , 850430  
SI PROTECTION PROD VEH  
85120000000  
HEDXG4

PLT DATE 9-MAY-85 10:28:49

FILTER = ALPF 1650/ 5217/ -40  
MIN, MAX VALUES = -33.20 & 55.86 , 9.42 & 40.25

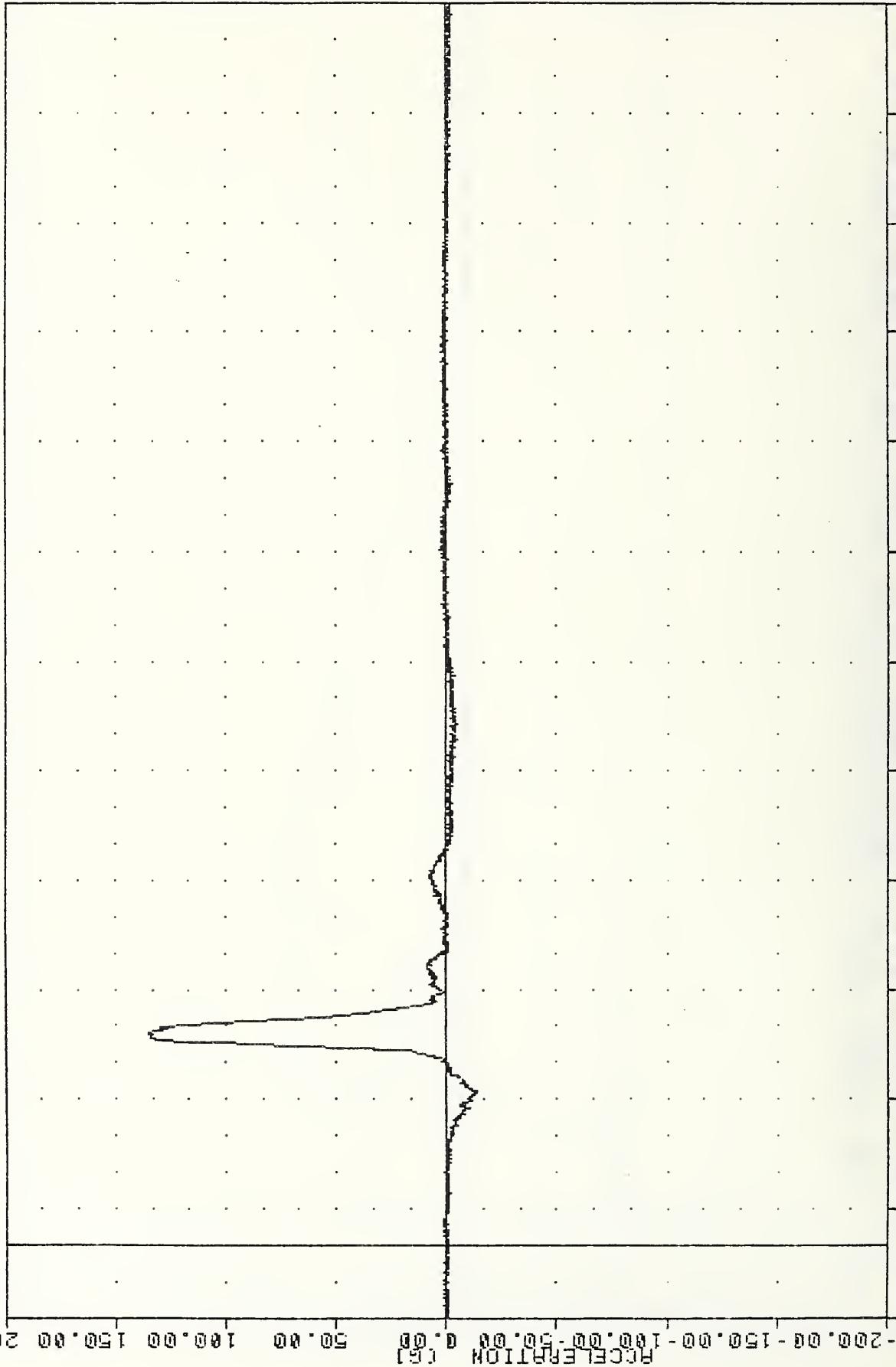


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER HEAD ACCELERATION X AXIS

VRT , 850430  
SI PROTECTION FROM VEH  
85120000000  
HEADGY

PLOT DATE 17-JUN-85 14:29:23

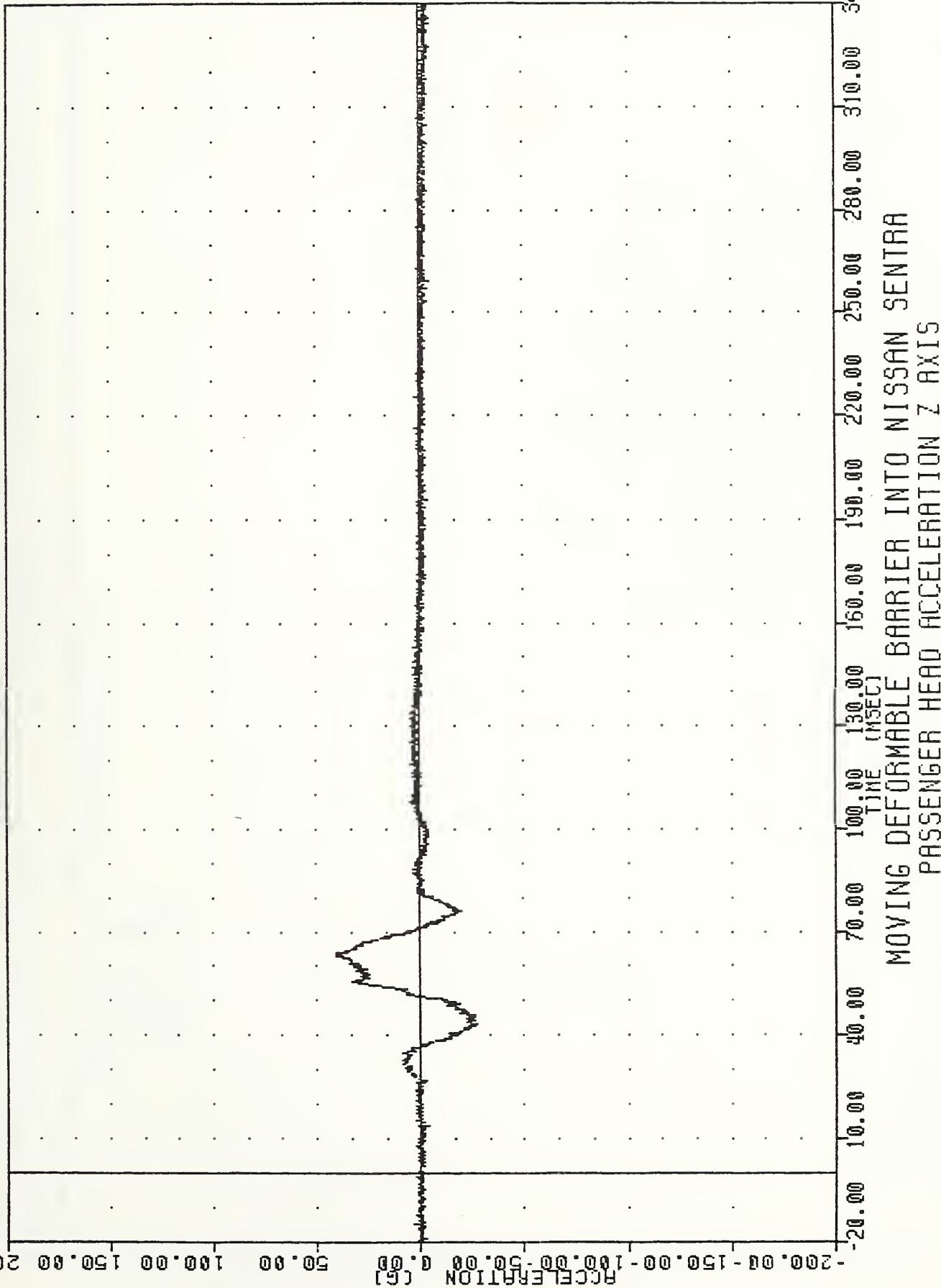
FILTER = HLPF 1650/ 5217/-40  
MIN, MAX VALUES = -13.98@ 42.00 , 135.23 @ 56.00



-200.00 -150.00 -100.00 -50.00 0.00 50.00 100.00 150.00 200.00  
ACCELERATION G's  
0.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME (msec)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER HEAD ACCELERATION Y AXIS

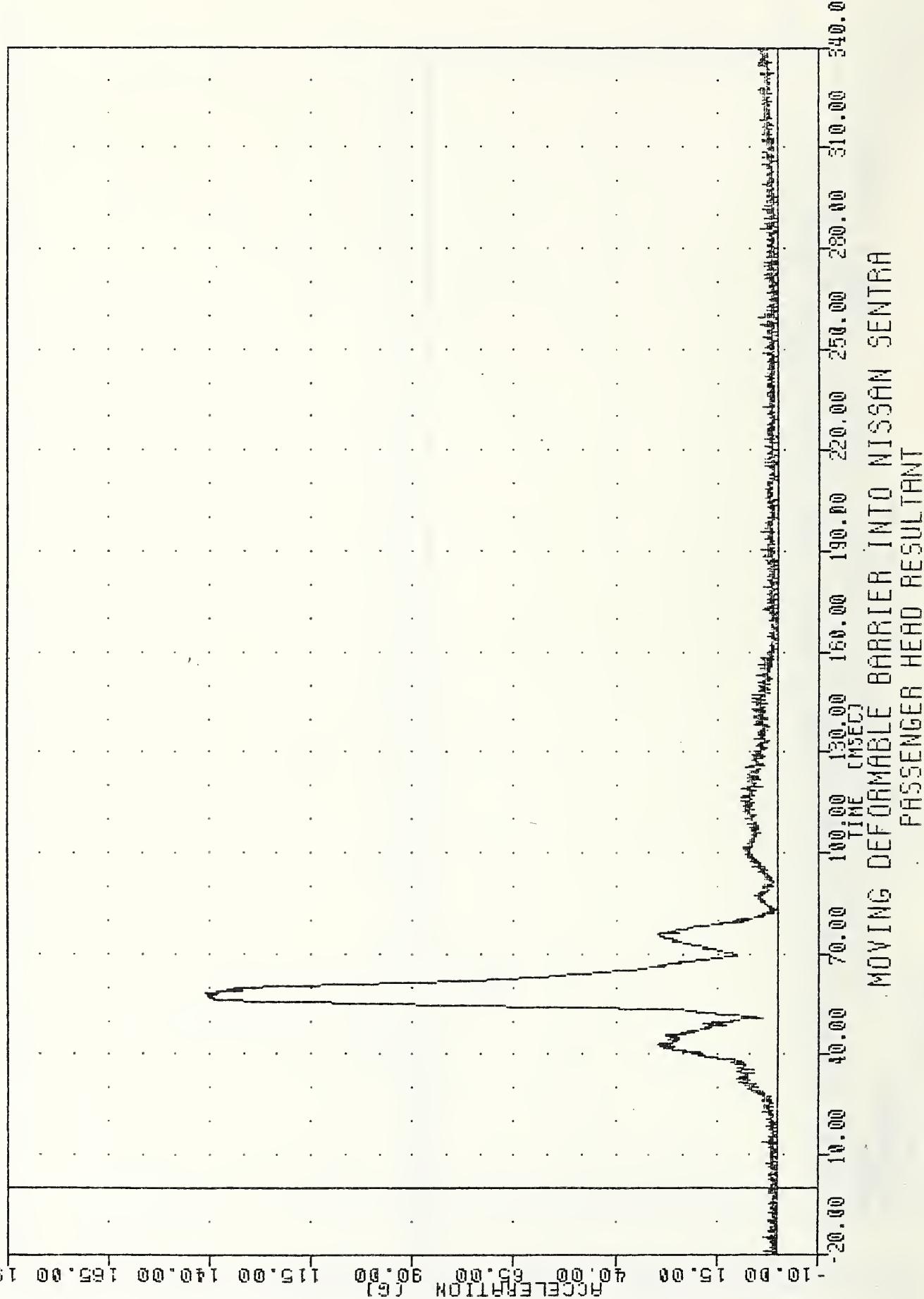
VBT , 850430  
SI PROTECTION PROD VEH  
85120000000  
HE01G4

PLOT DATE 9-MAY-85 10:28:49  
FILTER = ALPF 1650/ 5217/-40  
MIN, MAX VALUES = -26.800 43.25 . 40.56 & 63.38



WRT  
SI PROTECTION PROD VEH  
851200000000 HEADGY

PL01 DATE 17-JUN-85 14:29:23  
FILTER = ALPF 1650 / 5217 / -40  
MIN, MAX VALUES = 0.08 & -2.8E-09  
141.09 & 58.13

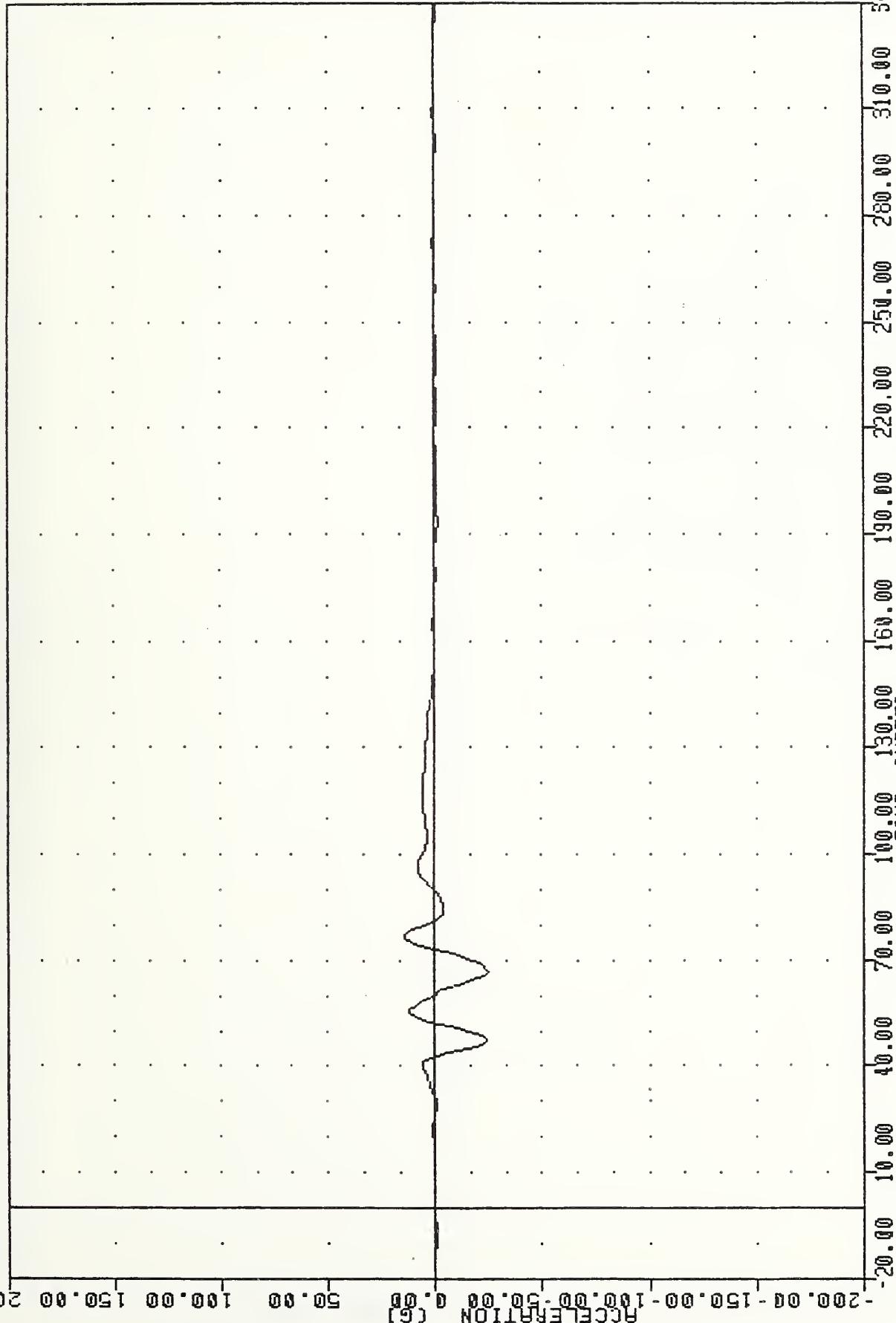


YRI  
SI PROTECTION PROD VEH

T01G4  
T01G4

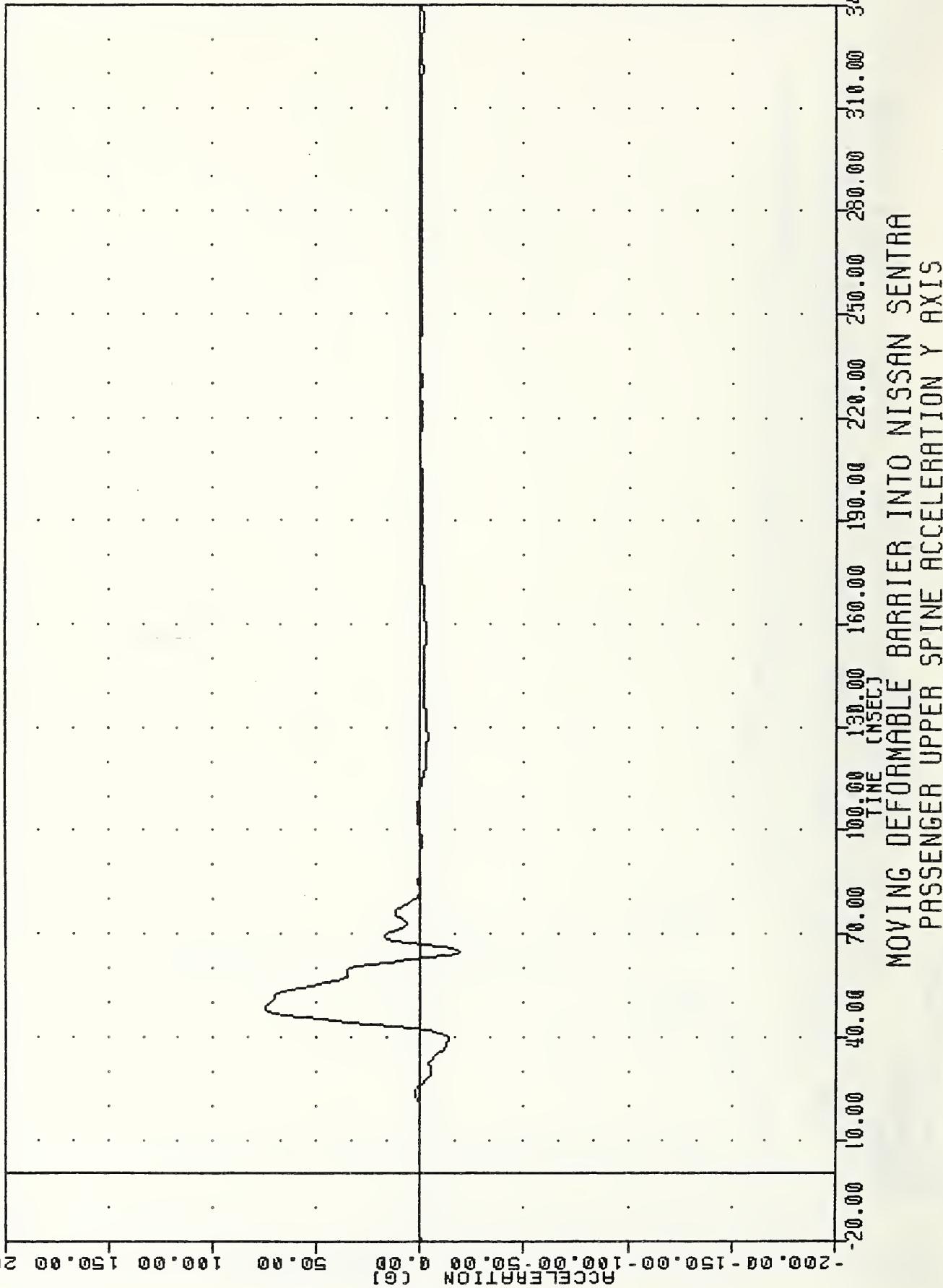
FILTER = HSRI    136/ 189/ -50  
MIN, MAX VALUES = -24.90 @ 66.87 .    14.51 @ 76.88

PLOT DATE 9-MAY-85    10:25:49  
851200000000



VAT , 850430  
SI PROTECTION PAID YEH  
8512000000  
T01Y64

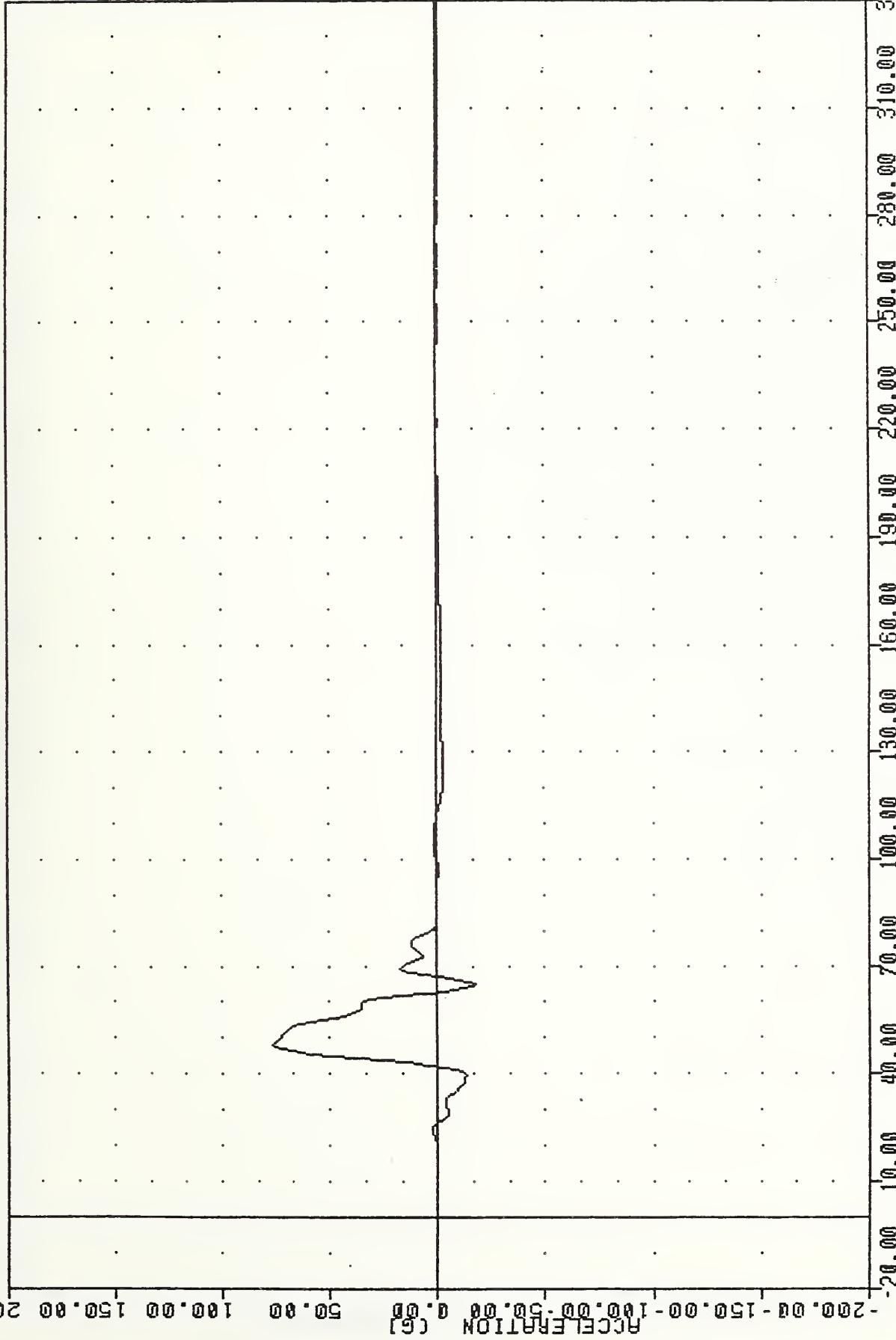
PLOT DATE 9-MAY-85 10:25:49  
 FILTER = HSRI 136 / 189/-50  
 MIN. MAX VALUES = -18.35 & 65



VRT  
SI PROTECTION PROD VEH  
851200000000  
101Y60

PLOT DATE 9-MAY-85 10:25:49

FILTER = HSR1 136/ 189/ -50  
MIN, MAX VALUES = -17.738 65.00 . 76.10 & 48.13

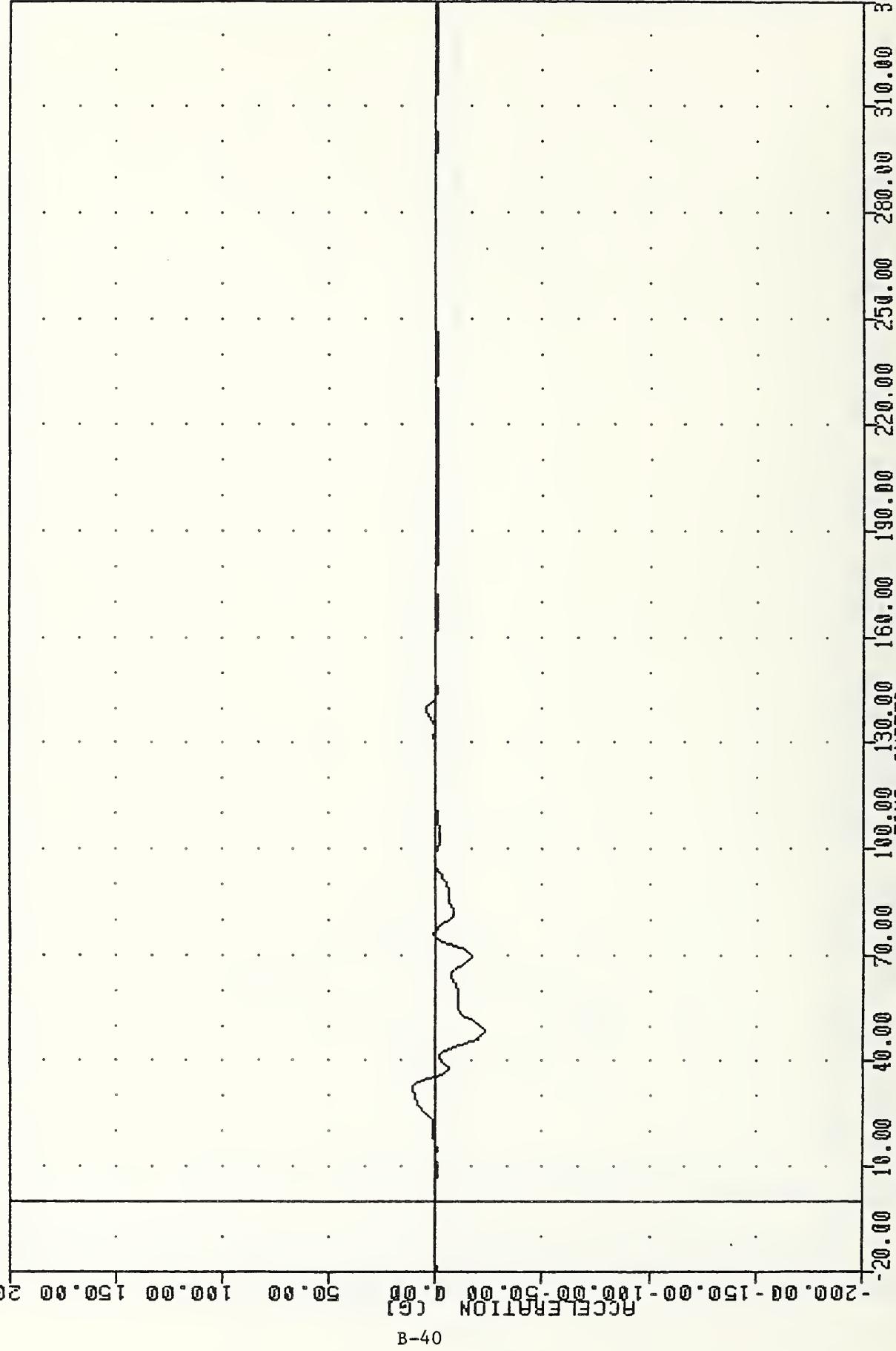


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER UPPER SPINE ACCELERATION \*2 Y AXIS

VARI  
SI PROTECTION PROD VEH  
851200000000  
T01ZG4

PL01 DATE 9-MAY-85 10:25:49

FILTER = HSRI 136/  
MIN, MAX VALUES = -22.95 e 48.13 , 11.07 e 31.88



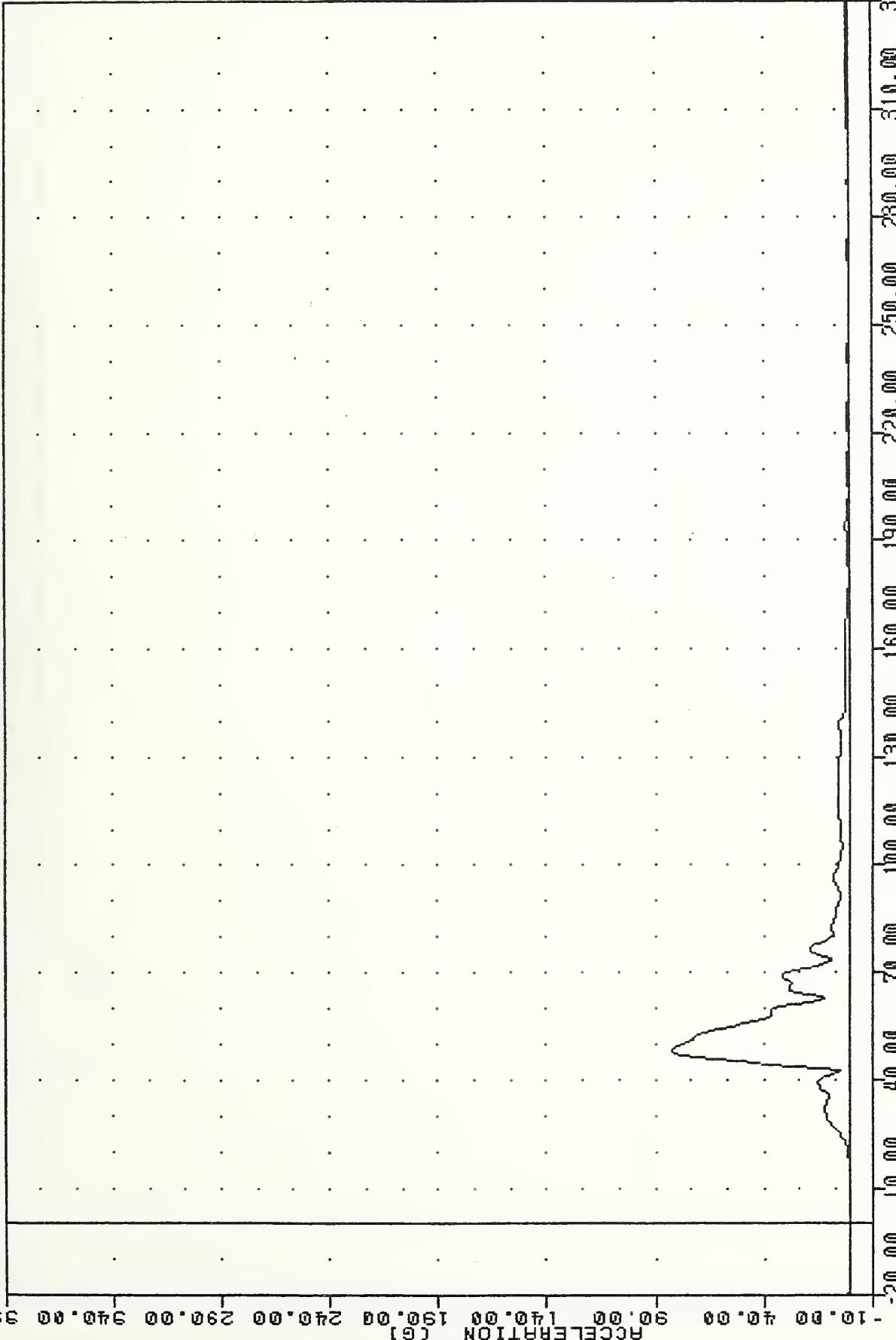
B-40

TIME [MSEC]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER UPPER SPINE ACCELERATION Z AXIS

VAT , 850430  
SI PROTECTION PAOD YEH  
8512D0000000  
T01RE4

PLOT DATE 9-MAY-85 10:25:49

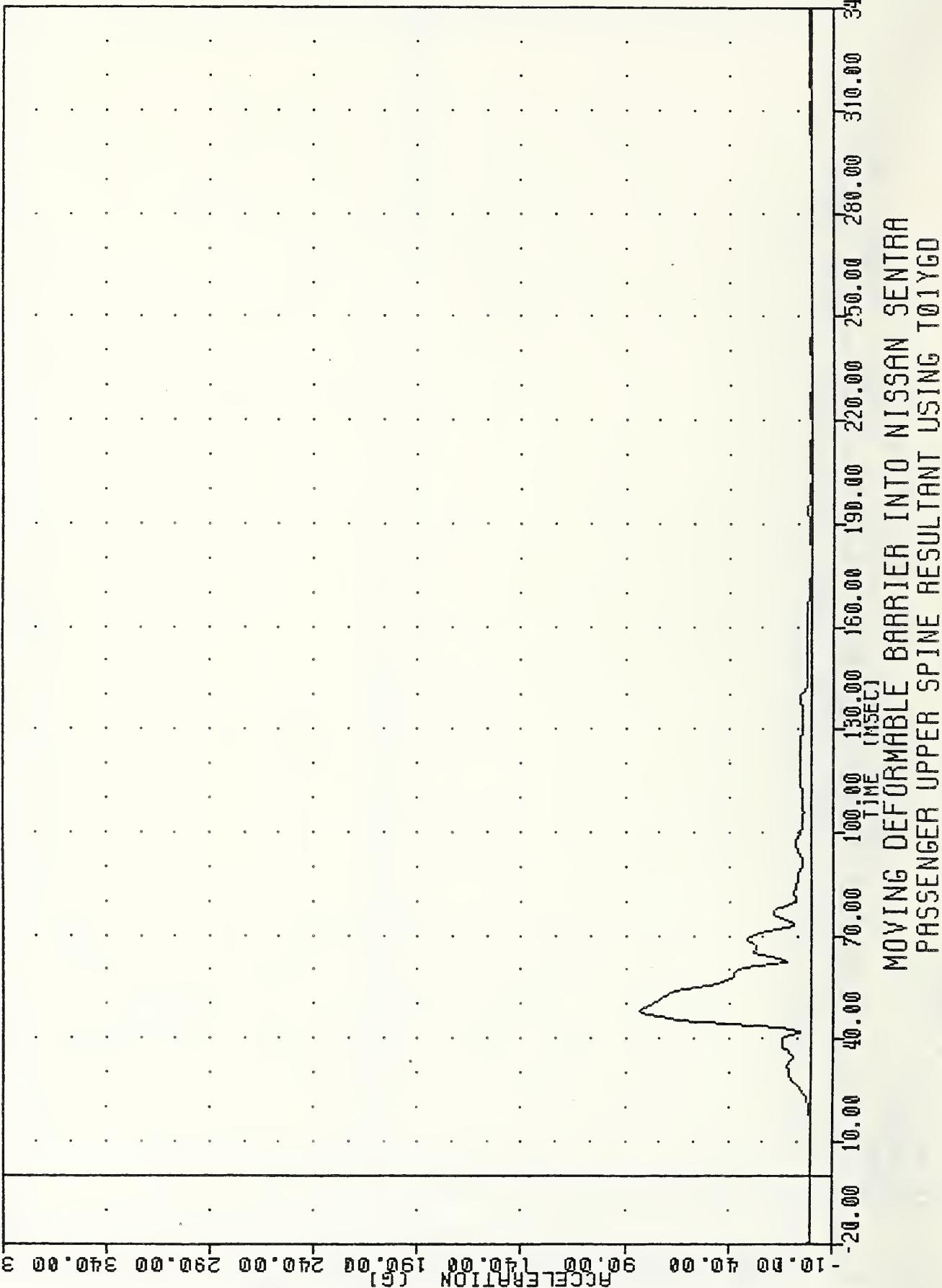
FILTER = HSRI 136/  
MIN, MAX VALUES = 0.11@ 5.00 .  
81.72 @ 48.13



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER UPPER SPINE RESULTANT

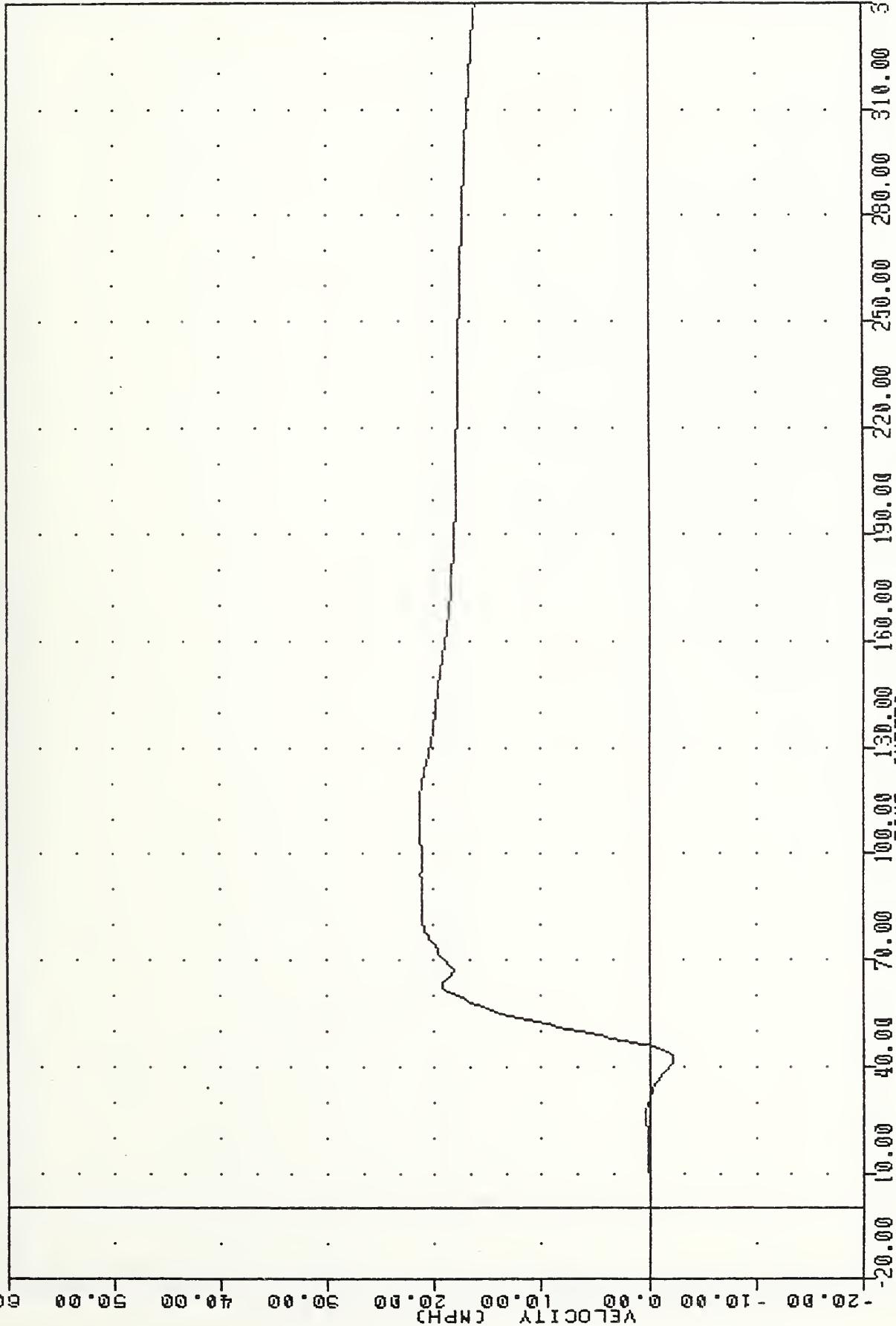
VRT  
SI PROTECTION PROD VEH  
85120000000  
T01RG0

PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = 0.13@ 256.25 , 82.91 @ 48.13



VAT , 850430  
SI PROTECTION PROD YEH  
85120000000  
T01Y4

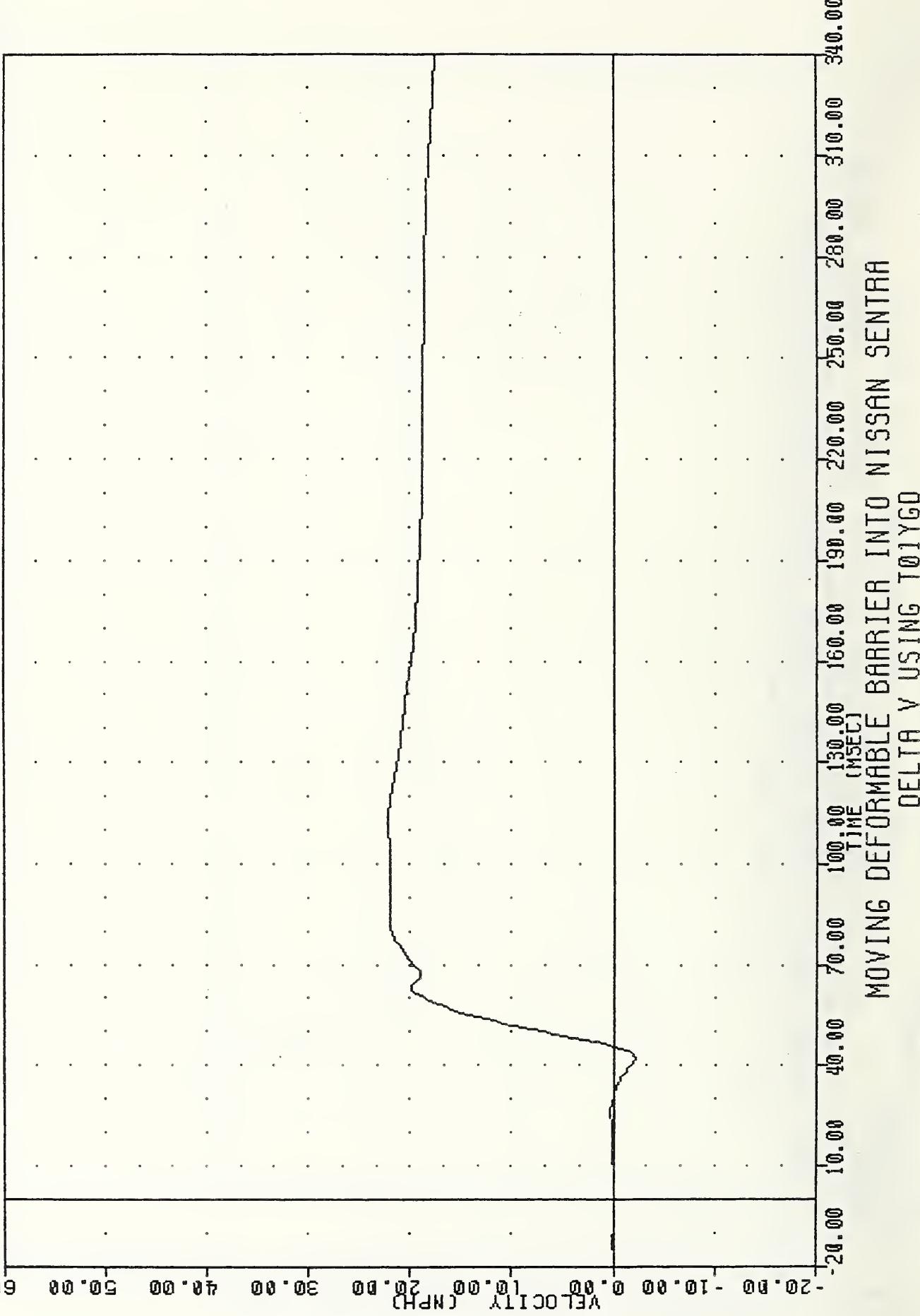
PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSRI 136/ 189/-50  
MIN. MAX VALUES = -2.28 e 42.50 , 21.38 e 111.88



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING T01Y4

VRT  
SI PROTECTION, PROD VEH  
TO1YV0  
851200000000

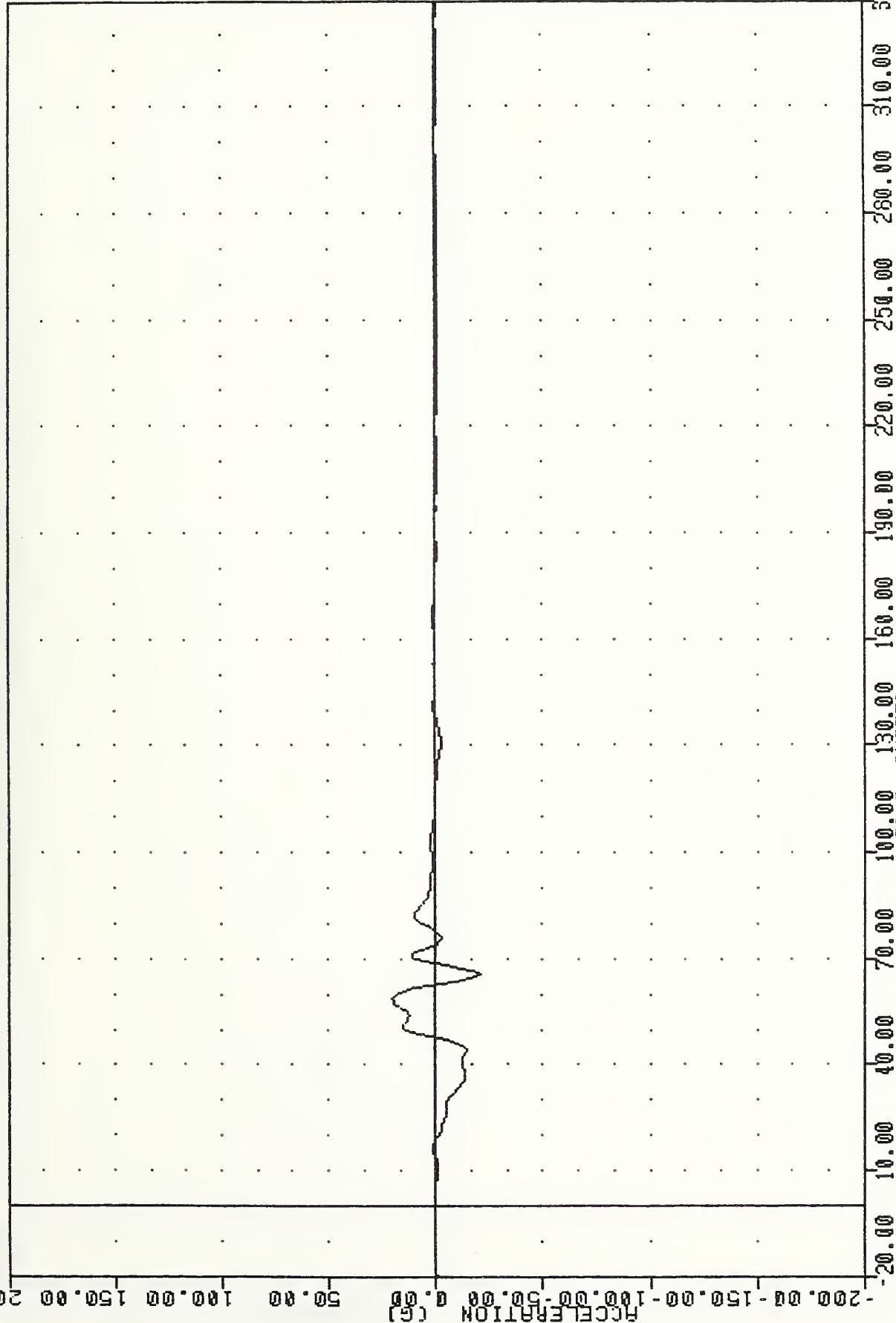
PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -2.17<sup>b</sup> 41.87<sup>a</sup> 22.16<sup>a</sup> 112.50



YRT  
SI PROTECTION PROD VEH  
851200000000  
T12XG4

PLOT DATE 9-MAY-85 10:25:49

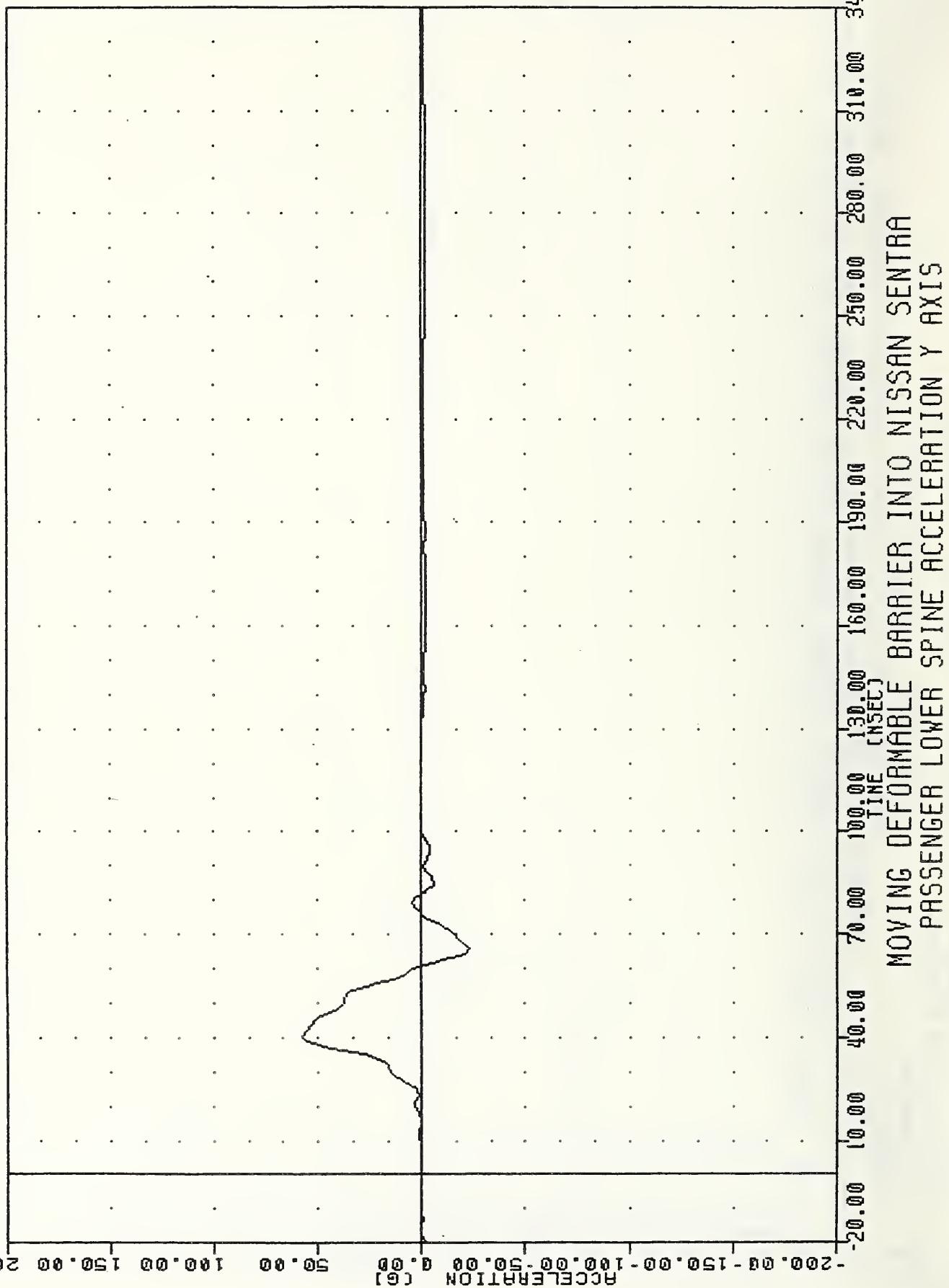
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -21.07 @ 65.63 , 19.90 @ 56.75



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER LOWER SPINE ACCELERATION X AXIS

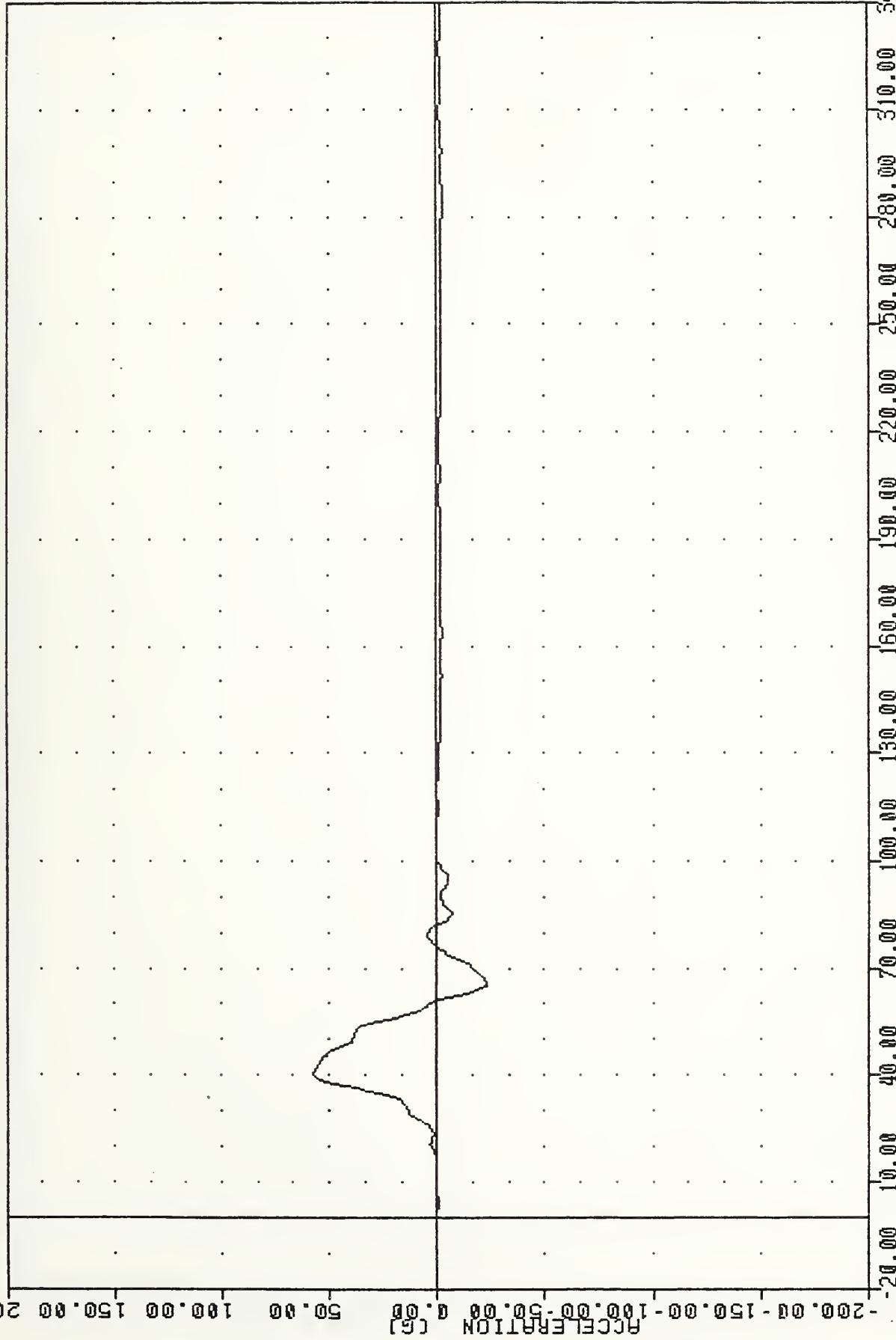
VAT  
SI PROTECTION PROD YEH  
85120000000  
T12YF4

PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -22.74 & 65.63 , 57.62 & 40.00



YAT  
SI PROTECTION PROD VEH  
851200000000  
112Y60

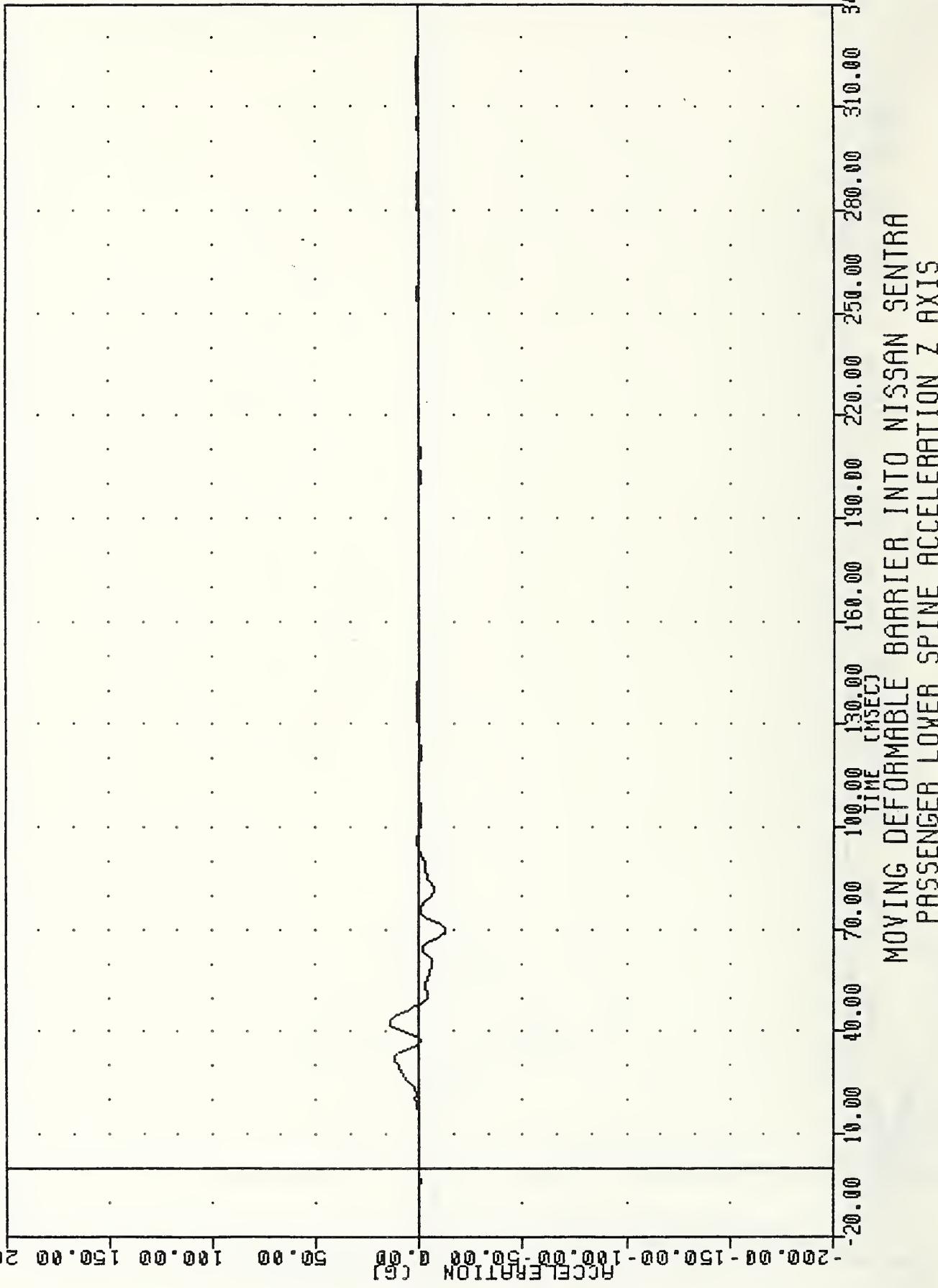
PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -23.56@ 65.63 . 57.55 @ 40.00



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER LOWER SPINE ACCELERATION #2 Y AXIS

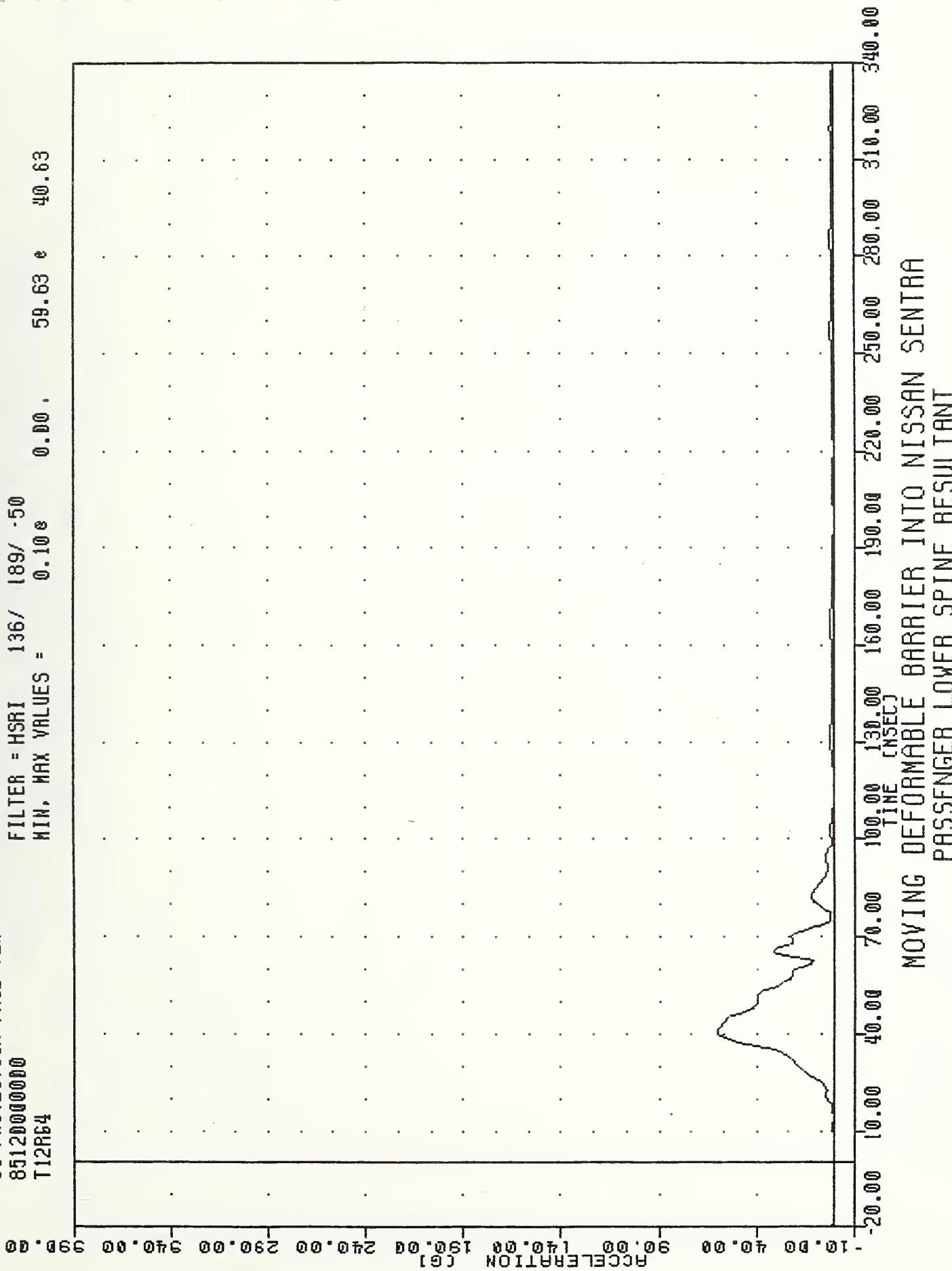
VRI . 850430  
SI PROTECTION PROD VEH  
851200000000  
T12ZG4

PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -12.88 & 69.38 , 14.48 & 42.50



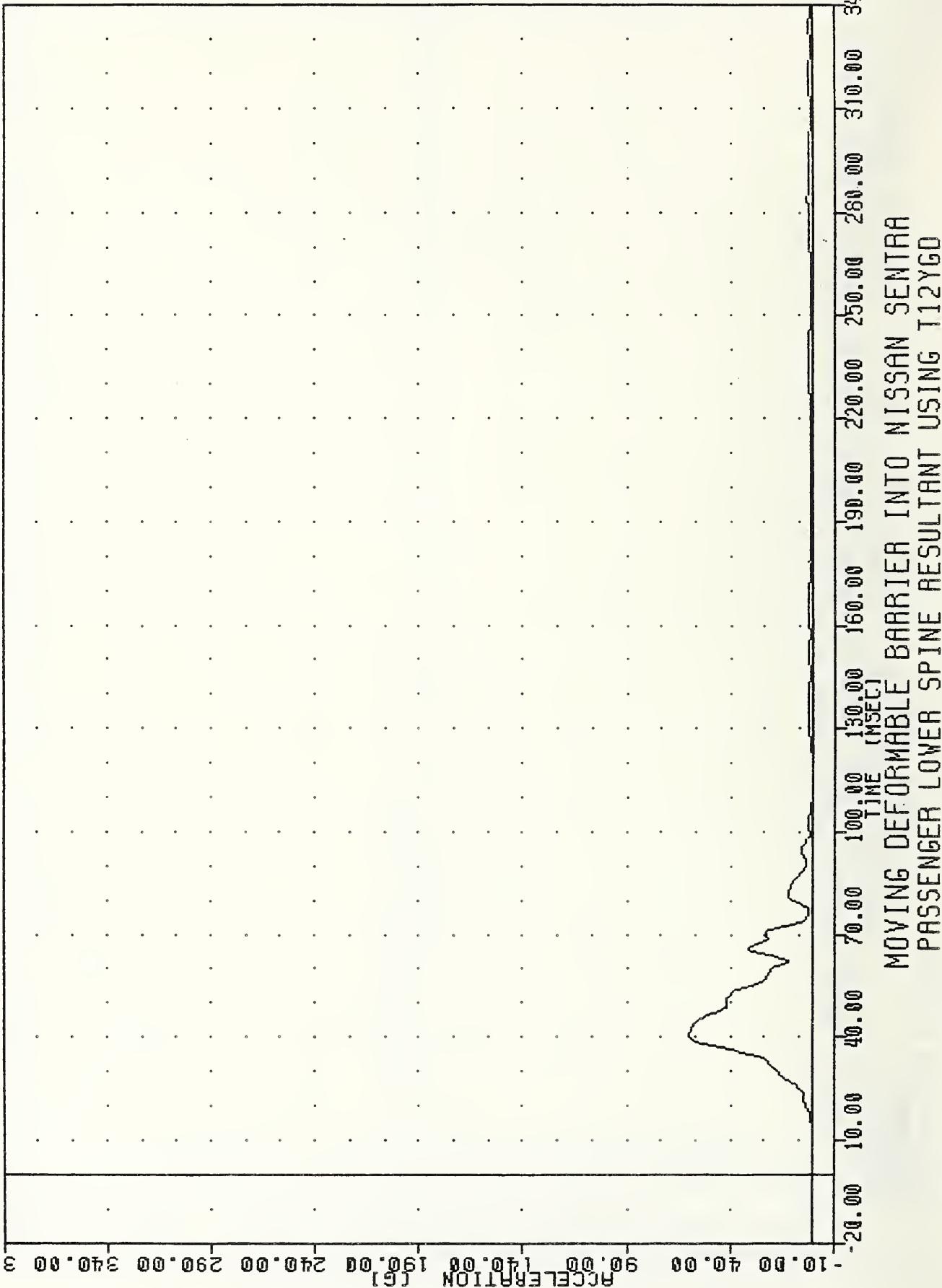
YAT , 850430  
SI PROTECTION PROD YEH  
8512000000  
T12RE4

PLOT DATE 9-MAY-85 10:25:49



VRT  
SI PROTECTION PROD VEH  
851200000000  
112RGD

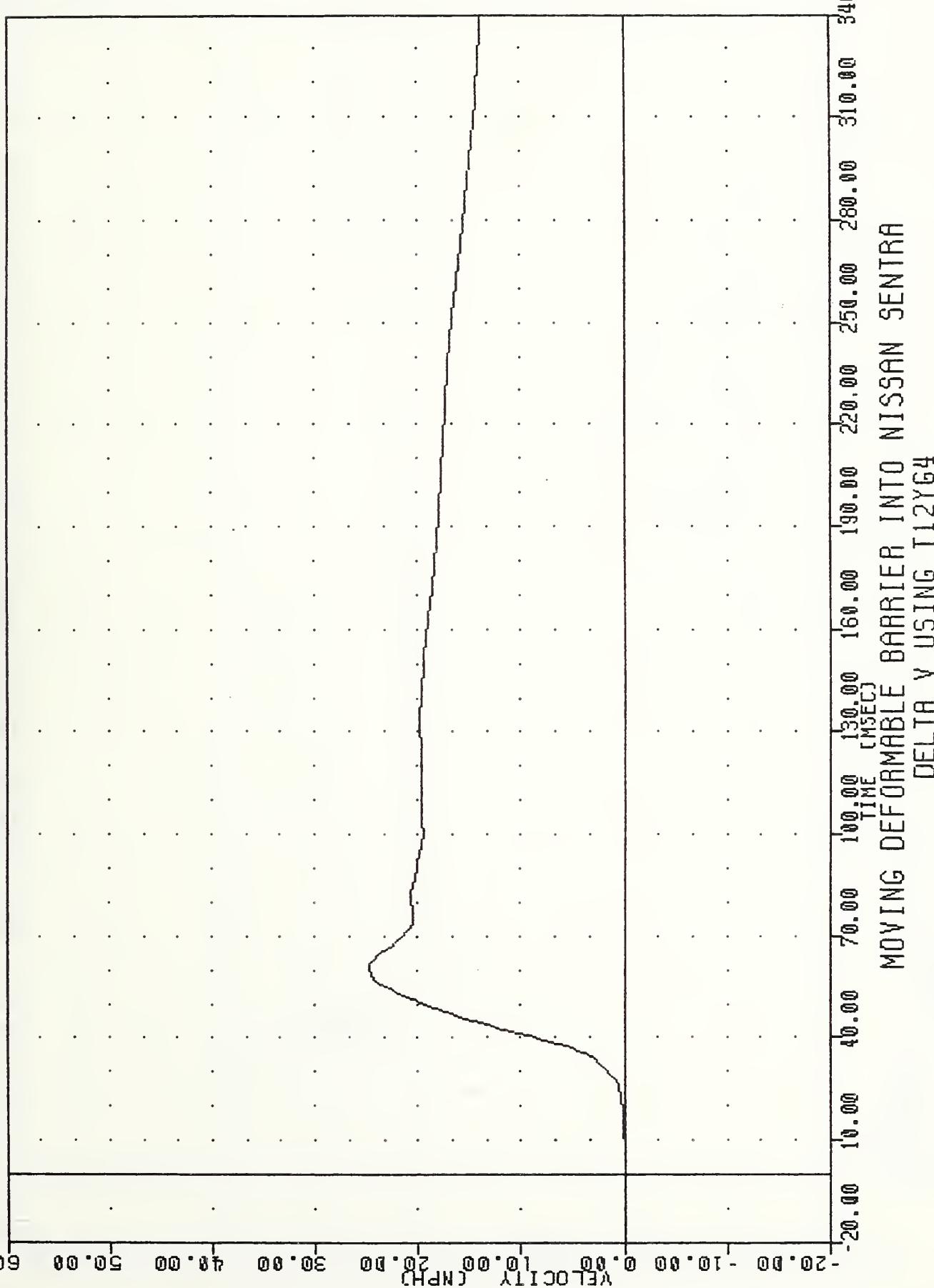
PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = 0.098 118.13 , 59.71 & 40.63



PLOT DATE 9-MAY-85 10:27:48

VRI  
SI PROTECTION PHOD VEH  
851200000000  
T12YV4

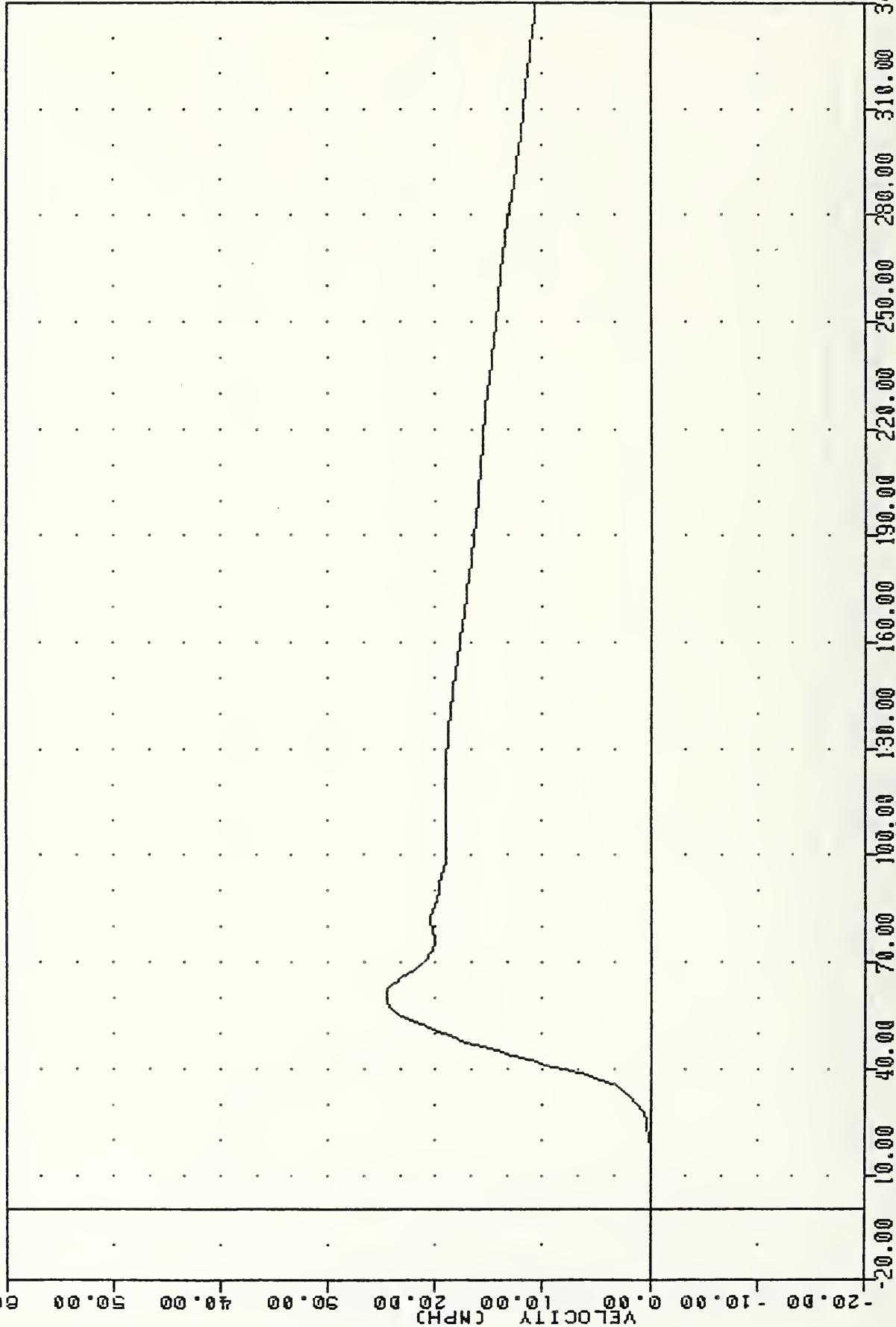
FILTER = HSRI 136 / 189 / -50  
MIN, MAX VALUES = -0.07 e -10.63 , 24.70 e 61.25



YAT  
SI PROTECTION PROD YEH  
8512000000  
T12YYD

PLOT DATE 9-MAY-85 10:27:48

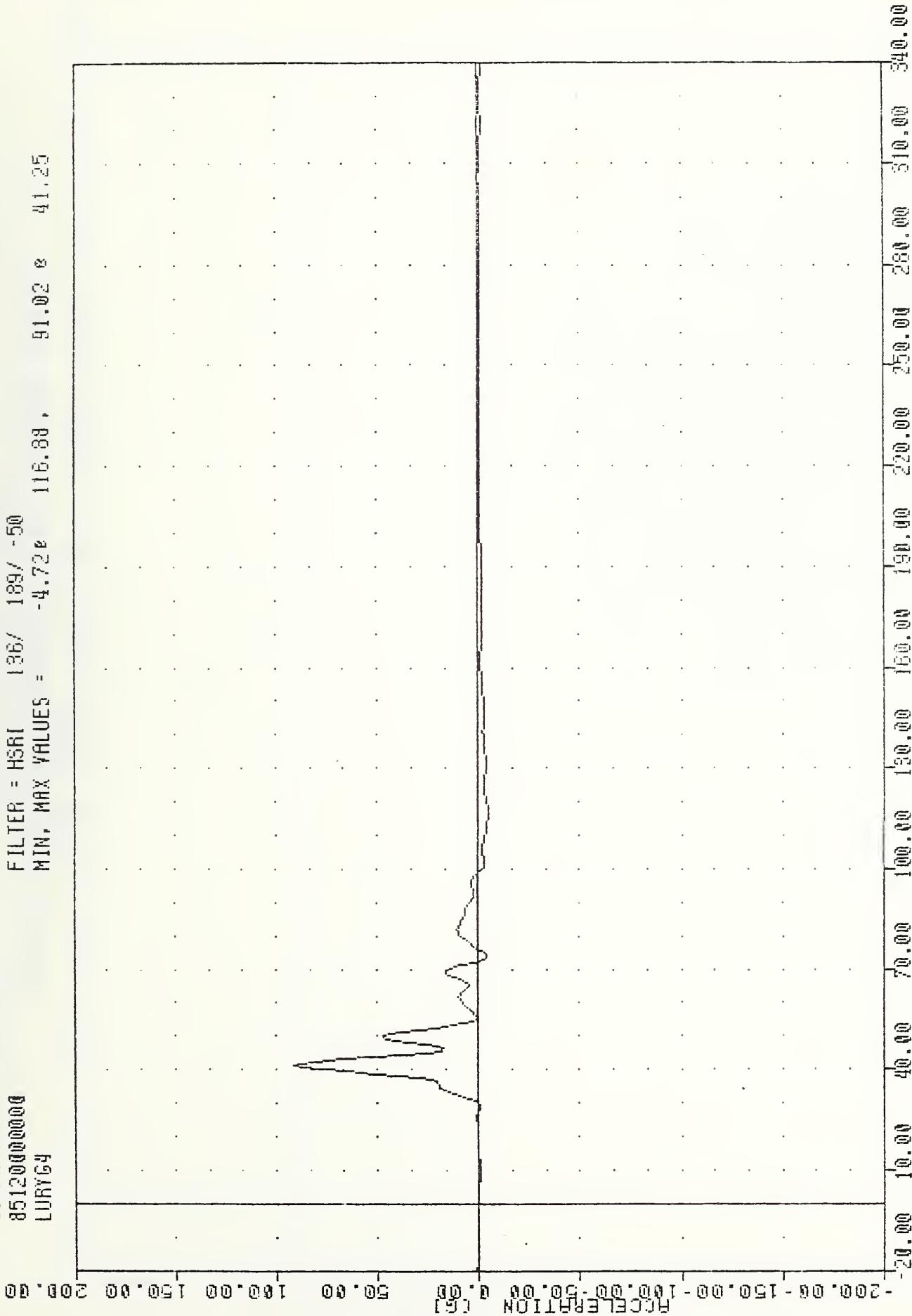
FILTER = HSRI 136/ 189/ -50  
MIN. MAX VALUES = -0.048 -7.50  
24.61 8 60.62



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING T12YYD

WRT  
SI PROTECTION PAD VEH  
851200000000  
LURGY

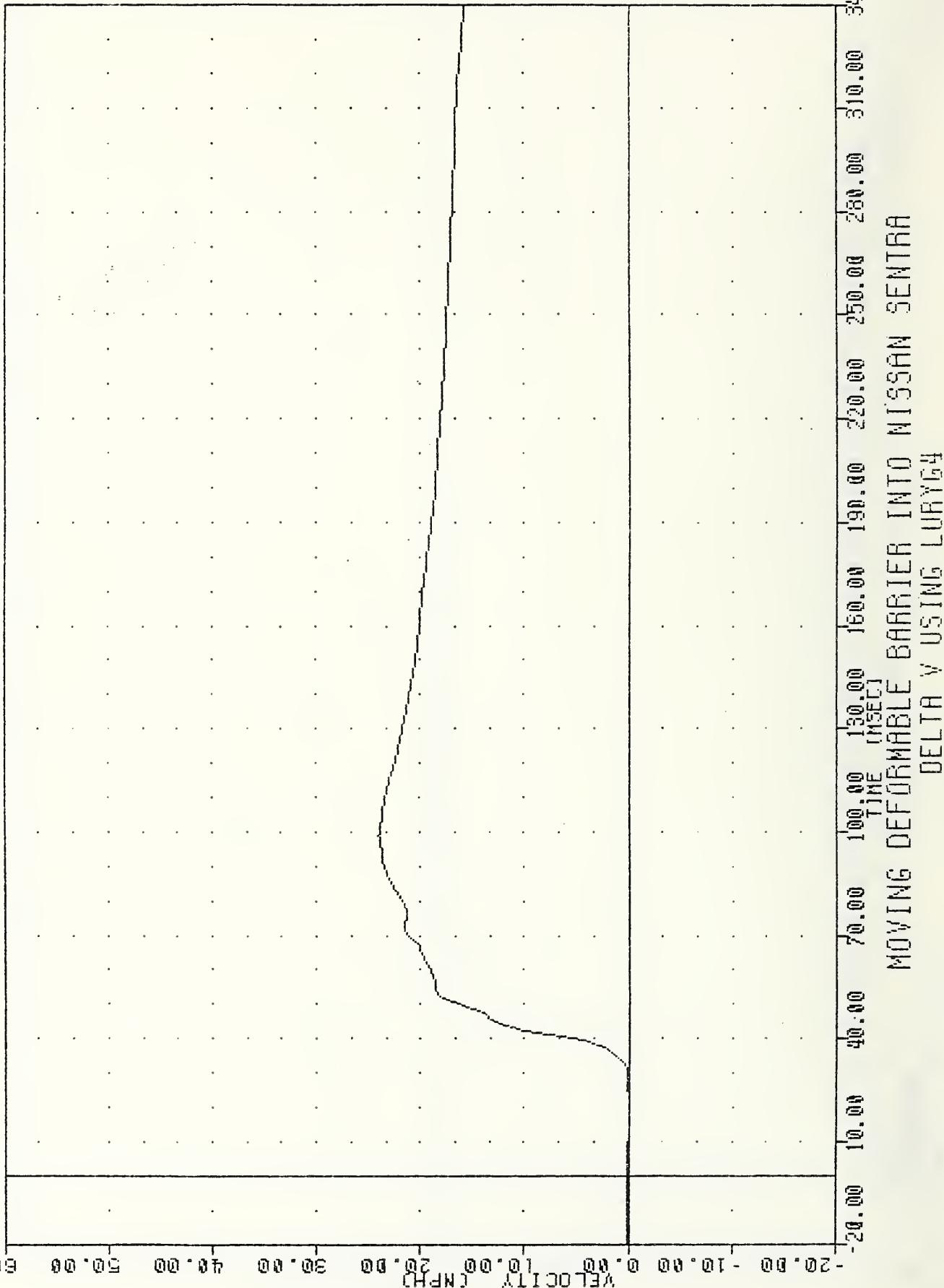
PLOT DATE 17-JUN-85 14:33:33



MOVING DEFORMABLE BARRIER INTO MISSION SENTRA  
PASSENGER LEFT UPPER RIB ACCELERATION Y AXIS

VPT , 65043@  
SI PROTECTION FAUD VEH  
351200000000  
LURVY4

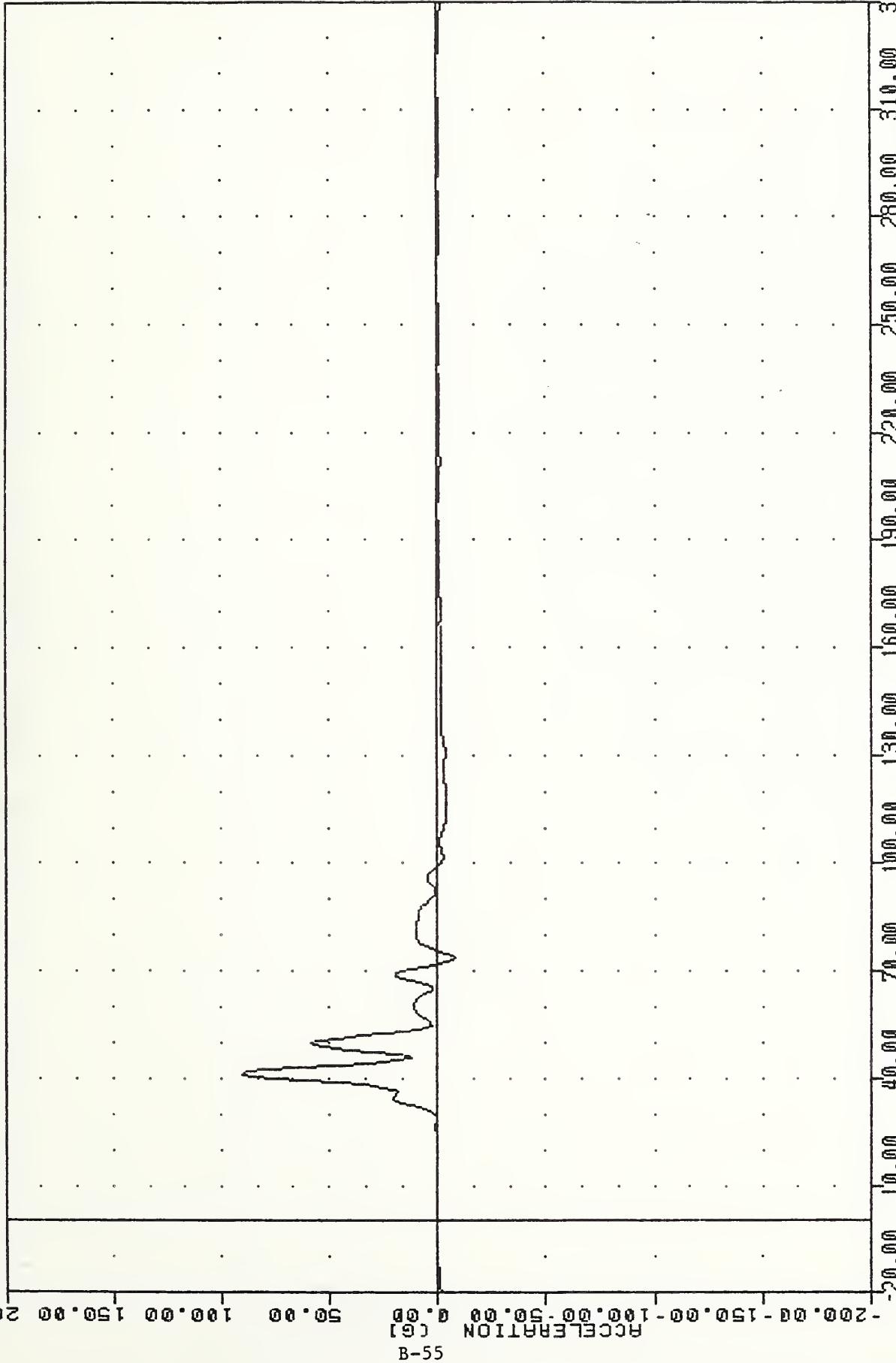
PLOT DATE 17-JUN-85 14:29:23  
FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = -0.028 21.25 , 23.98 & 98.75



VAT  
SI PROTECTION PROD YEH  
85120000000  
LURRY60

PLOT DATE 9-MAY-85 10:25:49

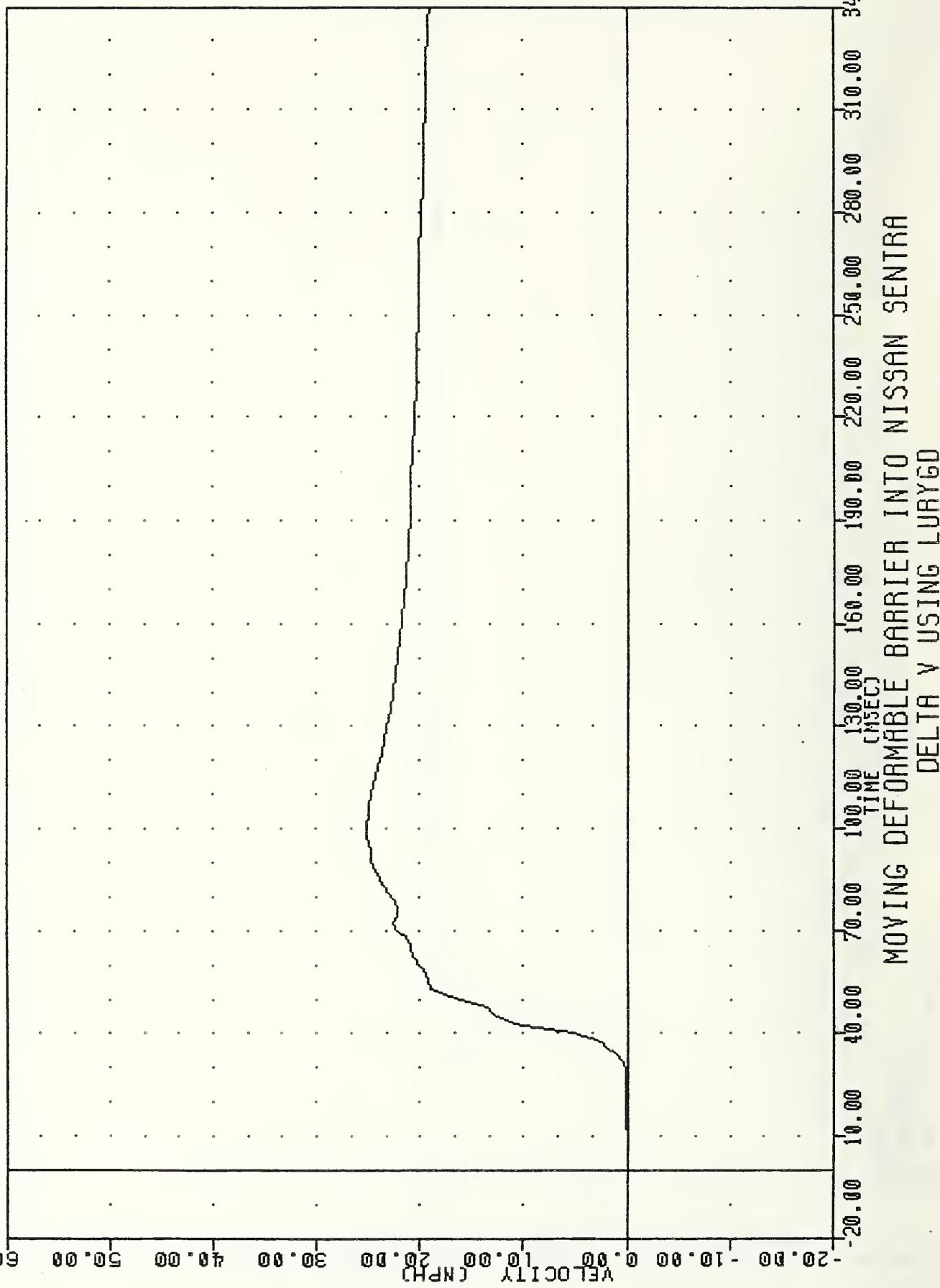
FILTER = HSRI 136/ 189/-50  
MIN, MAX VALUES = -8.18 & 73.75 , 90.78 & 41.25



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER LEFT UPPER RIB ACCELERATION #2 Y AXIS

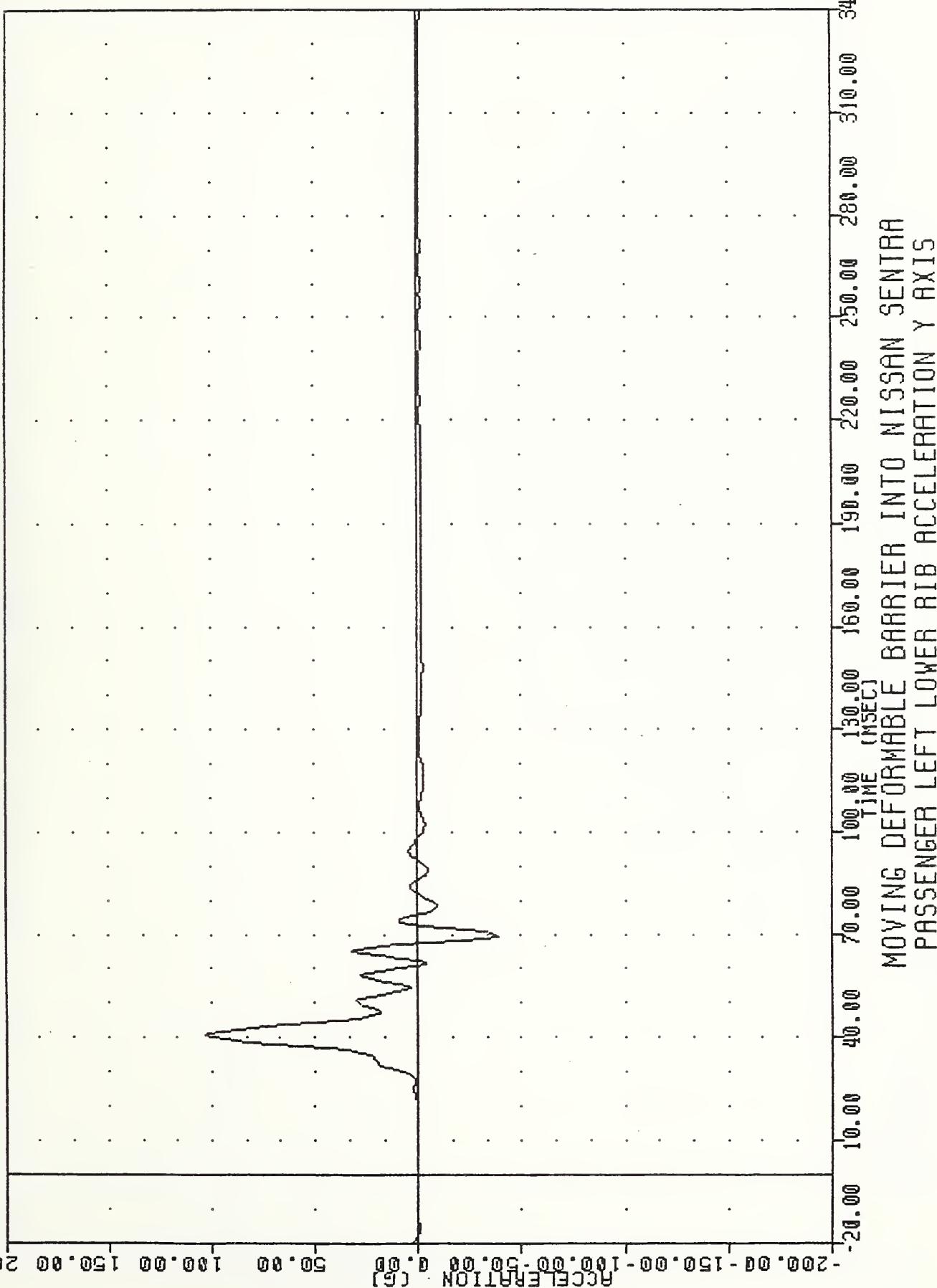
VRI  
SI PROTECTION PROD VEH  
851200000001  
LURAY60

PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSR1 136/ 189/ -50  
MIN, MAX VALUES = -0.11@ -11.88 , 25.17 @ 99.37



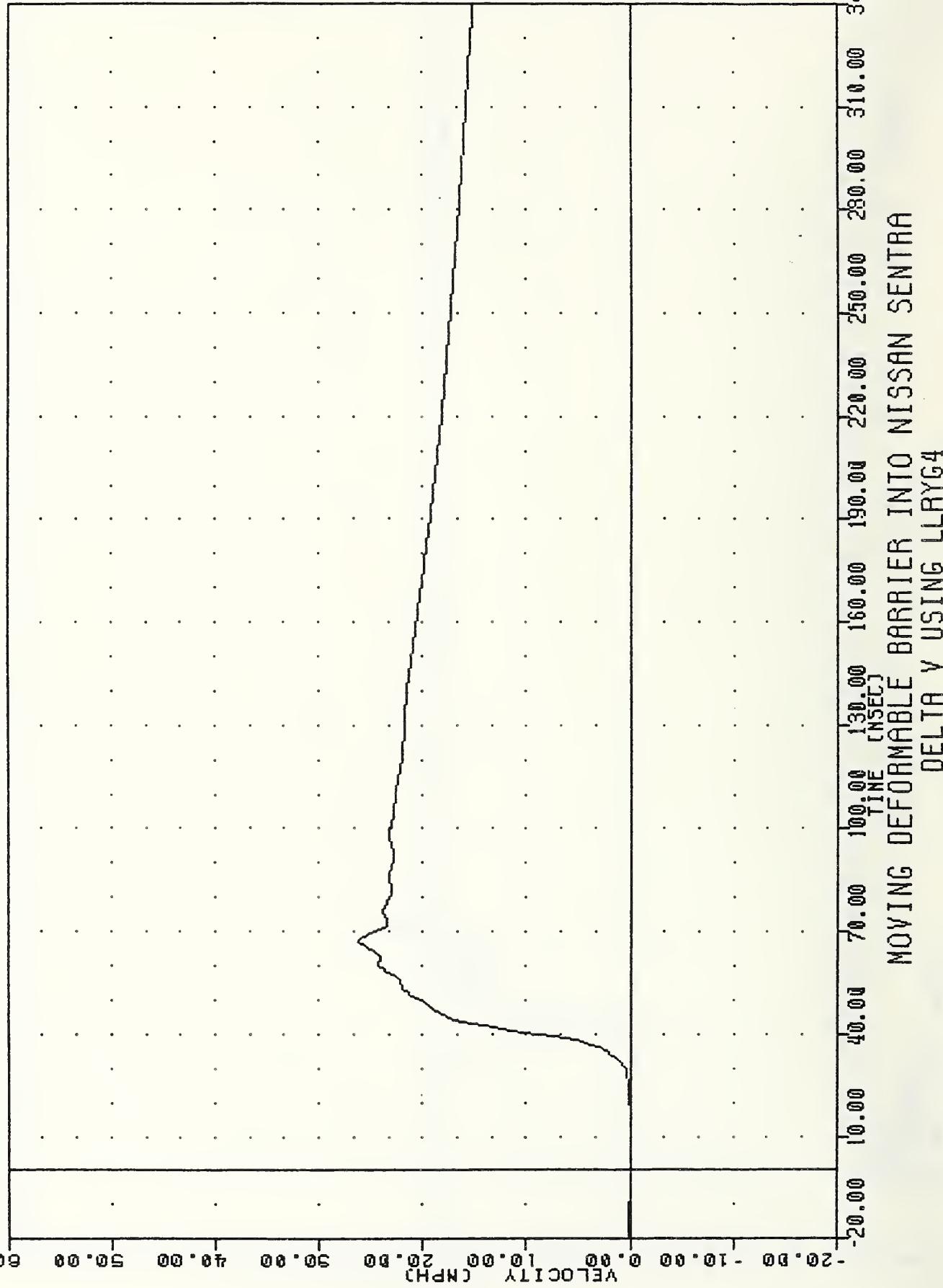
YRT  
SI PROTECTION PROD VEH  
851200000000  
LLRY64

PLOT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -38.59@ 69.38 , 103.07 @ 40.63



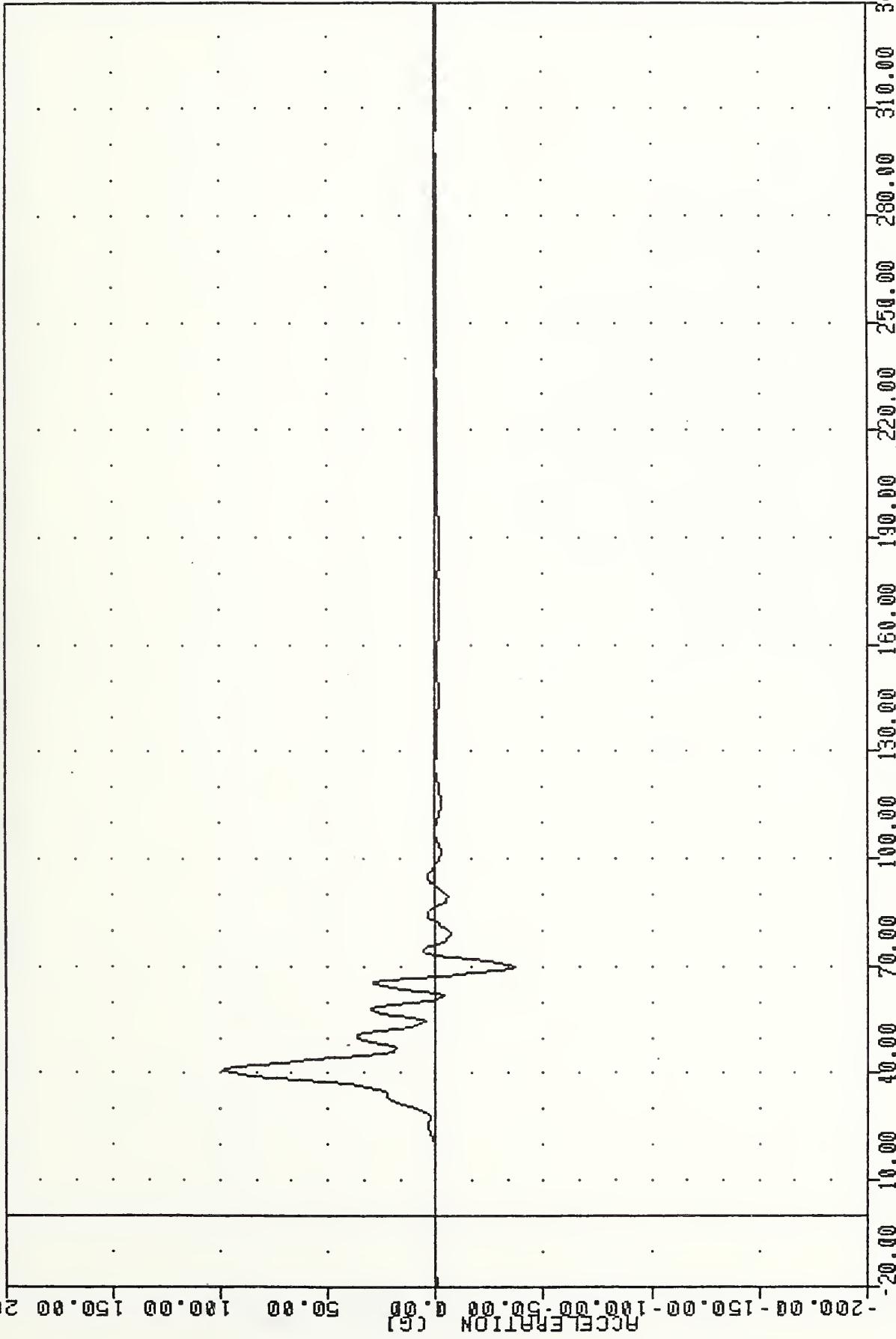
VAT , 850430  
SI PROTECTION PROD YEH  
85120000000  
LLRY4

PLOT DATE 9-MAY-85 10:27:48  
FILTER = HSR1 136/ 189/-50  
MIN, MAX VALUES = -0.01 & 10.00 , 26.16 & 67.50



YRT 850430  
SI PROTECTION PROB VEH  
851200000000  
LLAYGD

PLT DATE 9-MAY-85 10:25:49  
FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -36.91@ 70.00 . 98.66 @ 40.63

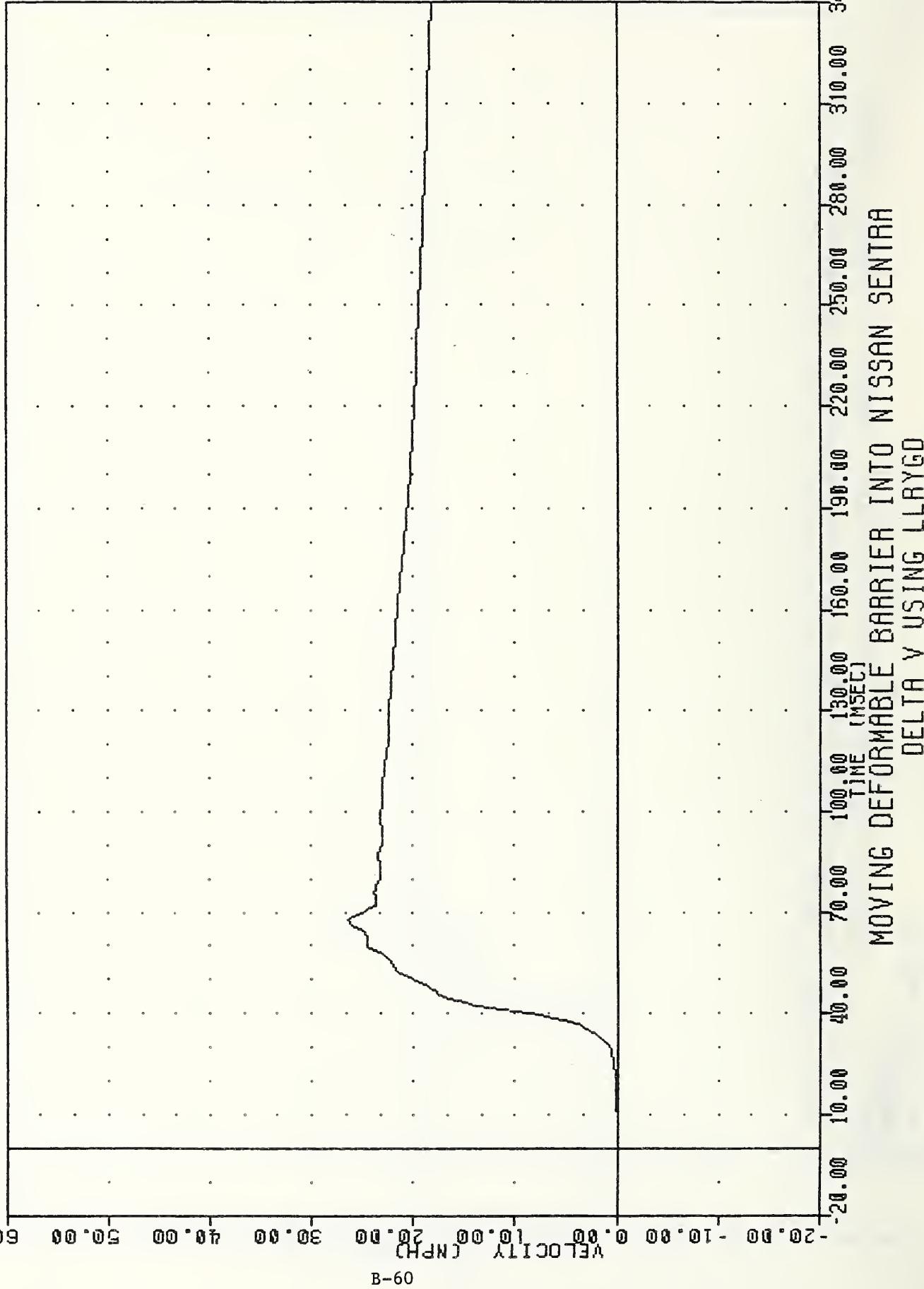


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER LEFT LOWER RIB ACCELERATION #2 Y AXIS

VRT , 850430  
SI PROTECTION PROD VEH  
851200000000  
LLRYGD

PLOT DATE 9-MAY-85 10:27:48

FILTER = HSRI 136/ 189/ -50  
MIN, MAX VALUES = -@.068 -10.63 . 26.32 & 67.50

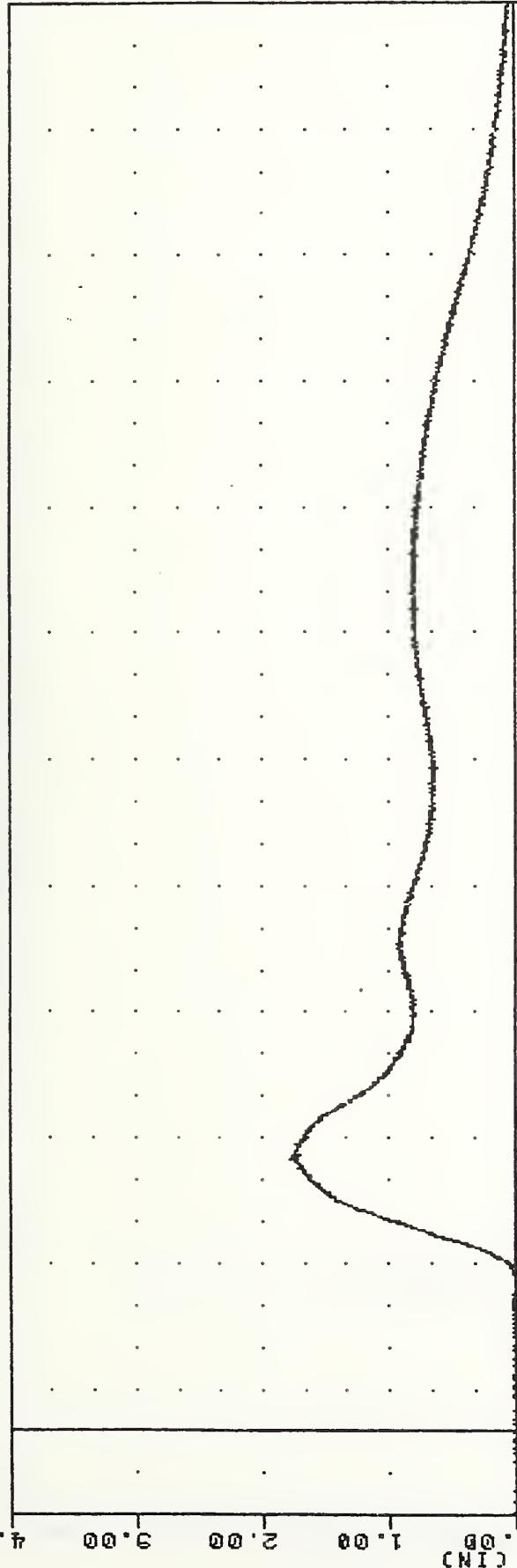


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING LLRYGD

VAT  
SI PROTECTION PROD YEH  
8512D0000000  
LATYD4

PLT DATE 9-MAY-85 10:28:49

FILTER = ALPF 1650/ 5217/ -40  
MIN, MAX VALUES = -0.02 & -4.50 , 1.78 & 64.75

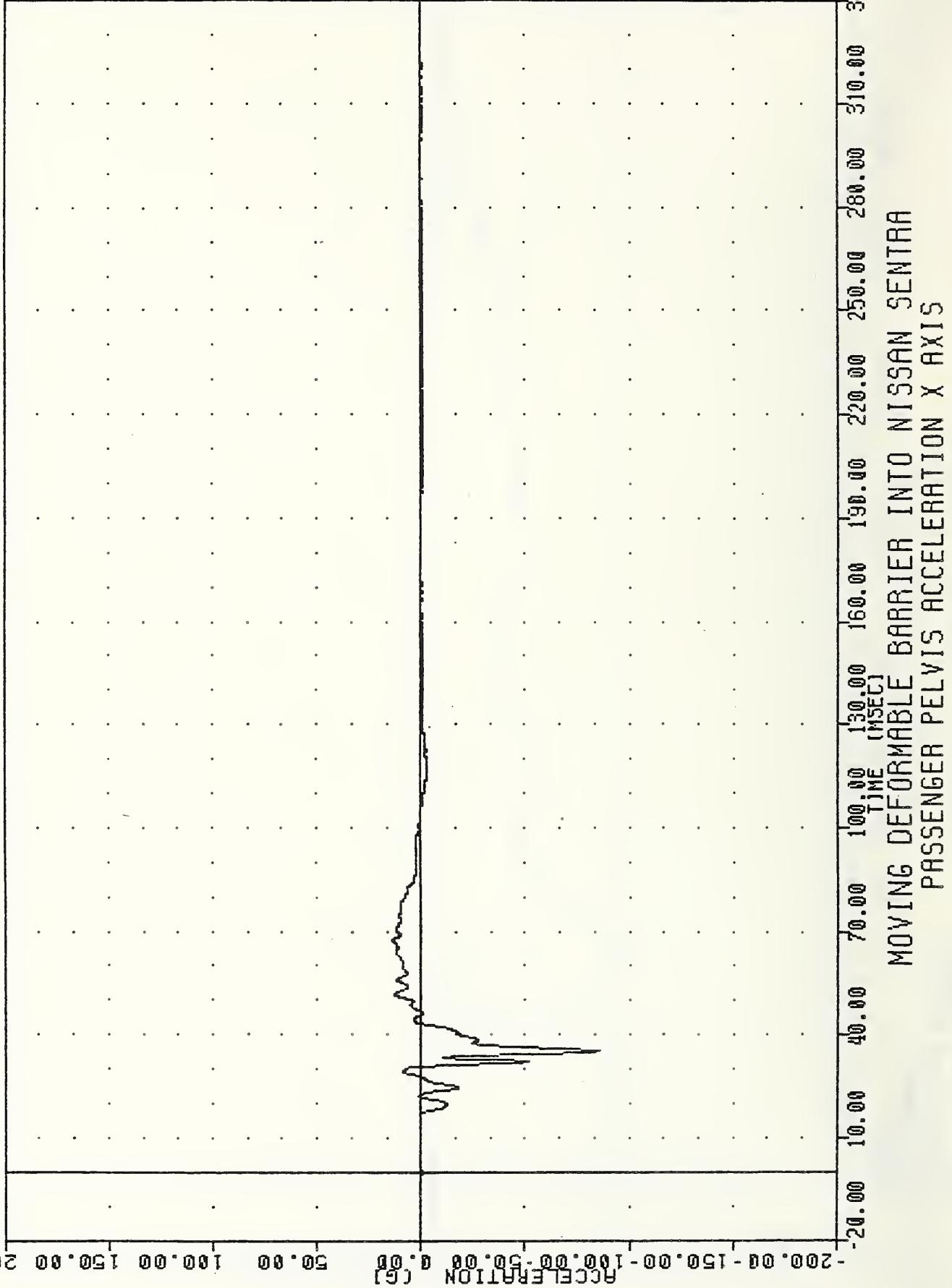


B-61

-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME (SEC)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER LEFT RIB TO SPINE DISPLACEMENT INCHES

VRT  
SI PROTECTION PROD VEH  
851200000000  
PEVXG4

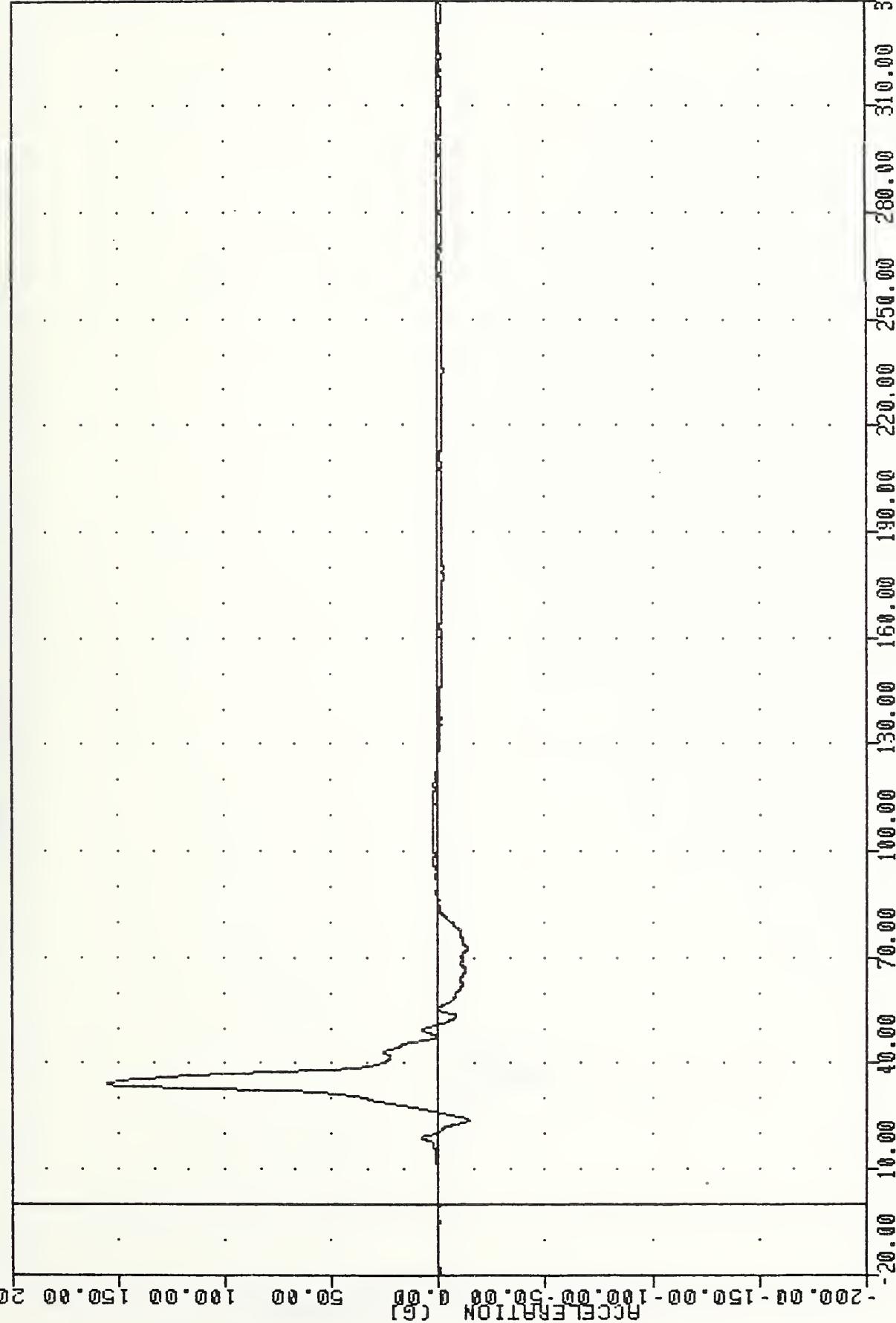
PLOT DATE 9-MAY-85 10:28:49  
FILTER = BLPF 3000/ 949/-40  
MIN, MAX VALUES = -85.188 35.131 13.558 67.38



VARI  
SI PROTECTION PROD VEH  
85120000000  
PEVYGY

PLOT DATE 9-MAY-85 10:28:49

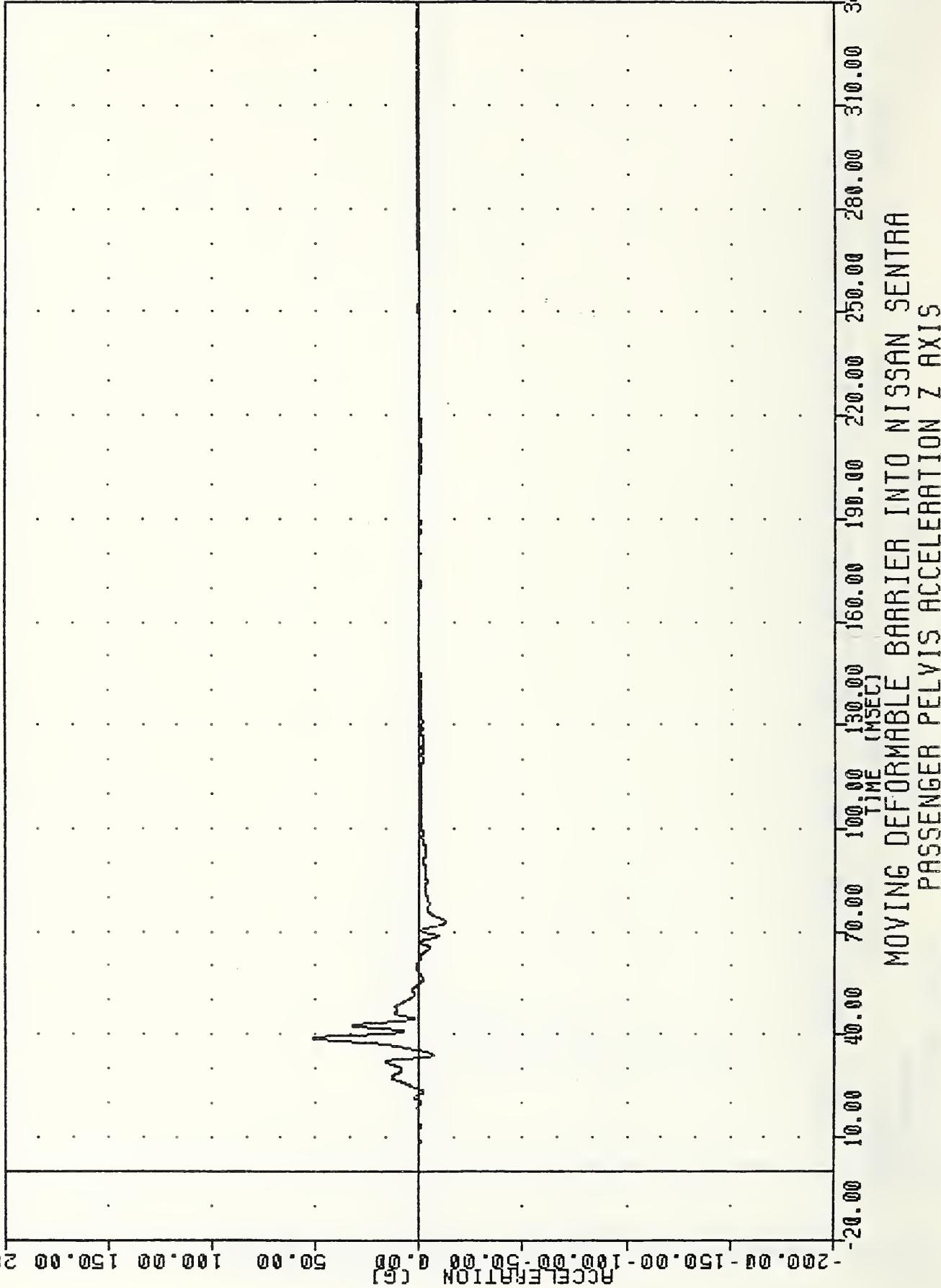
FILTER = BLFF 3000/ 949/-40  
MIN, MAX VALUES = -14.12@ 24.00 , 155.42 @ 34.13



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
PASSENGER PELVIS ACCELERATION Y AXIS

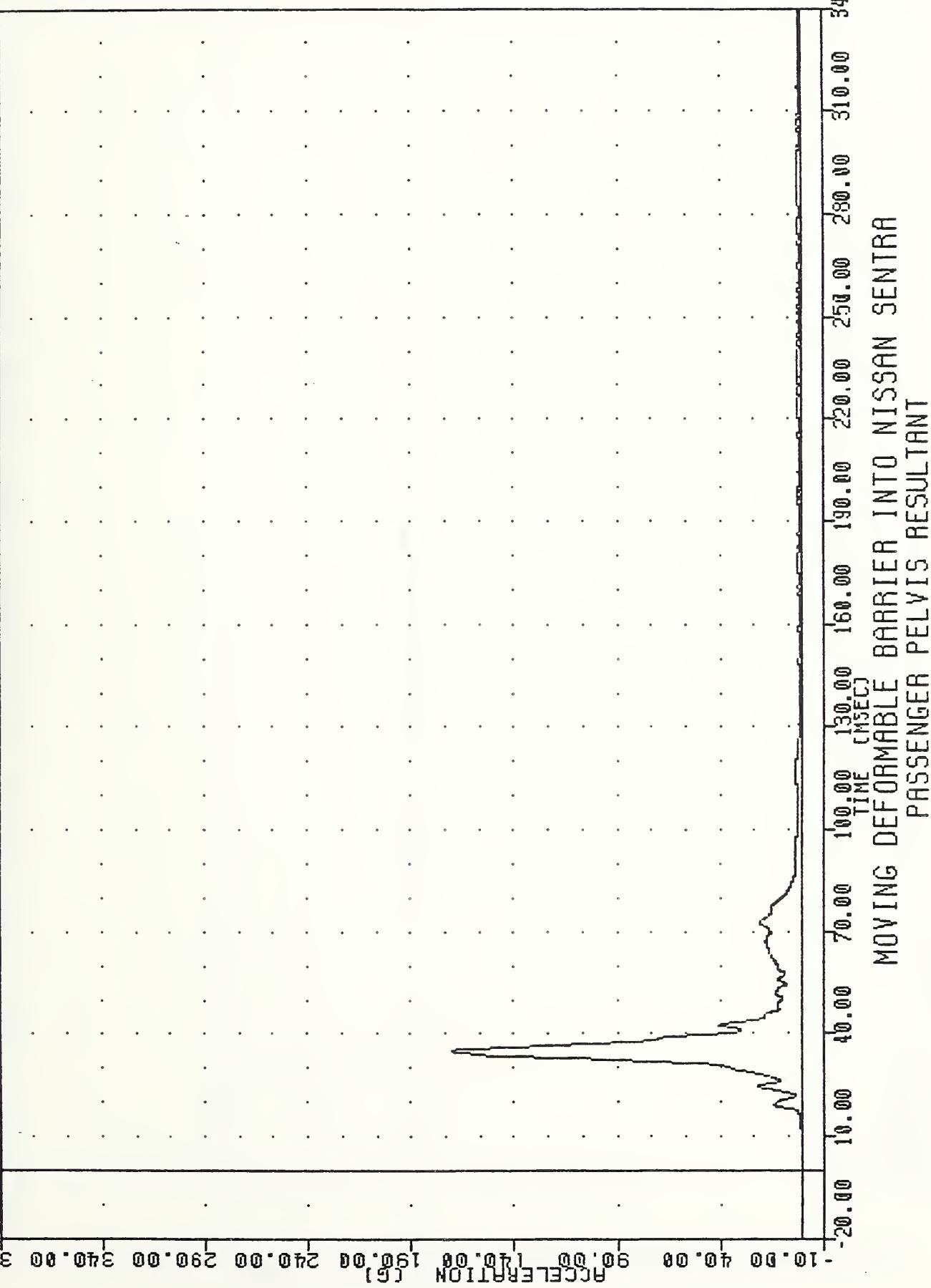
VAT , 850430  
SI PROTECTION PROD VEH  
85120000000  
PEVZ4

PLOT DATE 9-MAY-85 10:28:49  
FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = -12.638 72.75 , 51.22 & 38.88



VAT 850430  
SI PROTECTION PROG VEH  
851200000000  
PEVRG4

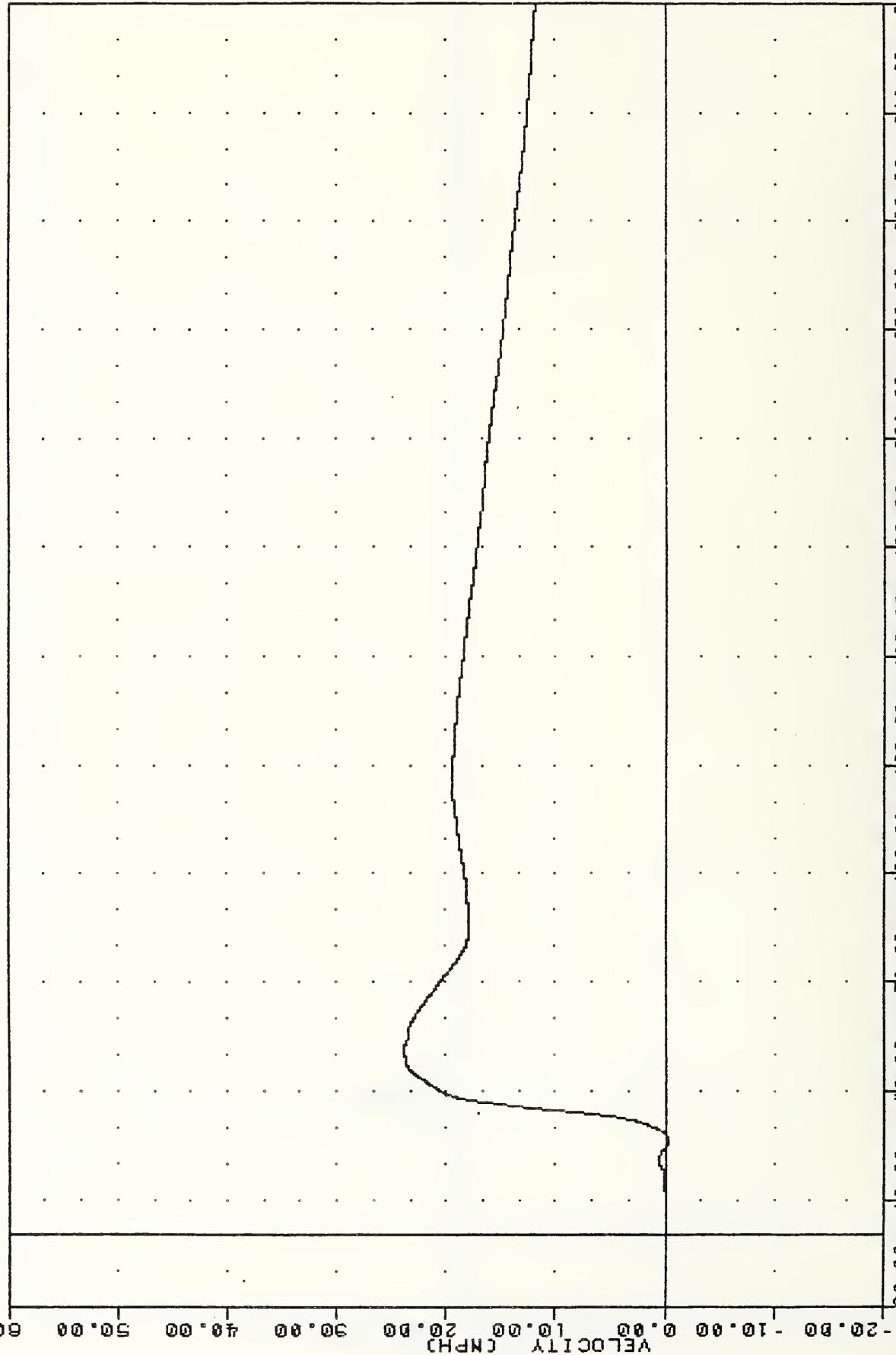
PLT DATE 9-MAY-85 10:28:49  
FILTER = BLPF 300/ 949/-40  
MIN, MAX VALUES = 0.07@ -14.00 . 170.02 @ 34.88



PLT DATE 9-MAY-85 10:28:49

VAT , 850430  
SI PROTECTION PROD YEH  
851200000000  
PEVY4

FILTER = BLPF 300 / 949/-40  
MIN. MAX VALUES = -0.358 26.25 , 23.90 & 51.00

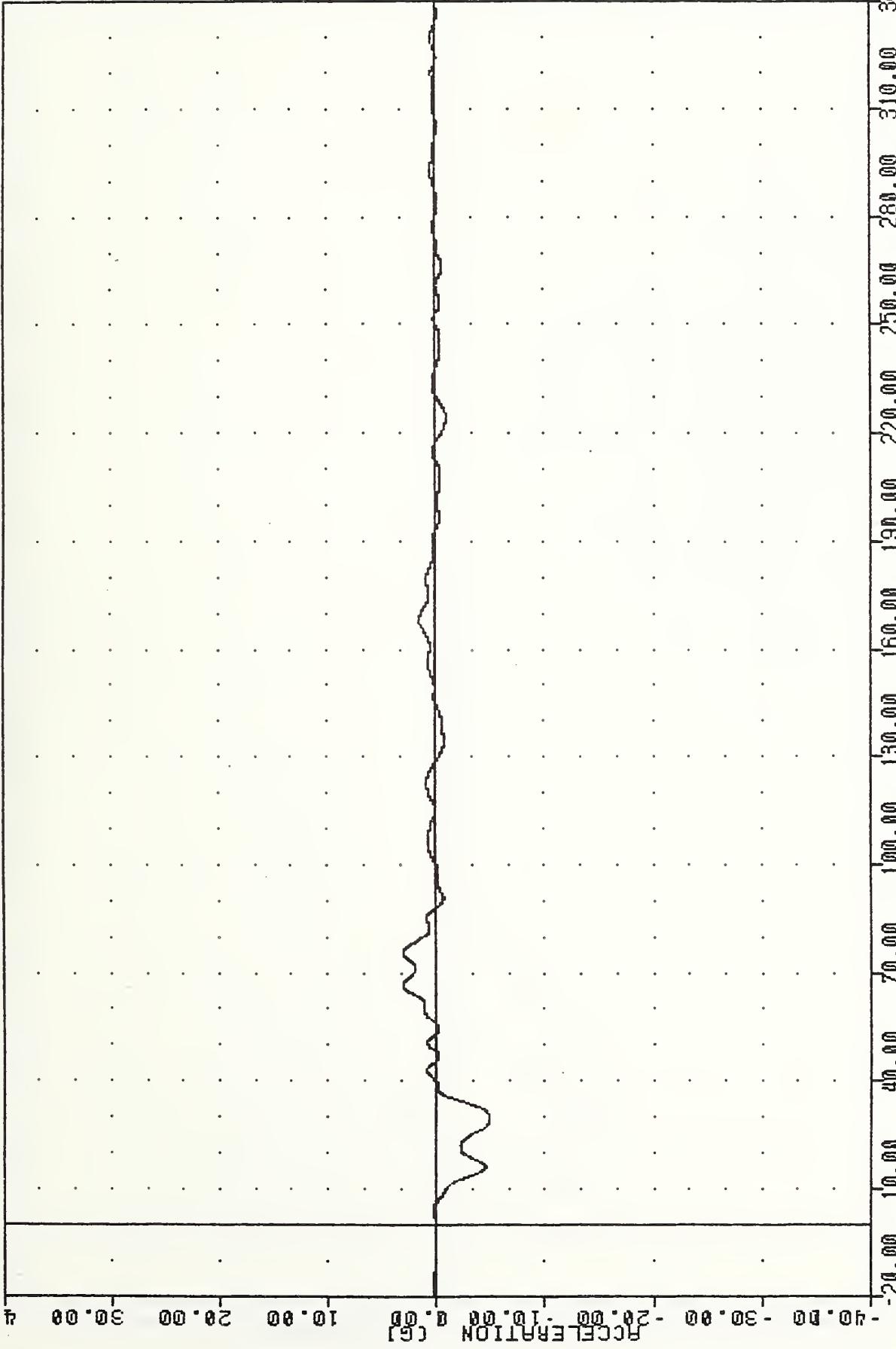


VRT  
SI PROTECTION PROD VEH  
851200000000  
RFSXG

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -4.838 29.63 .

3.11 & 66.63

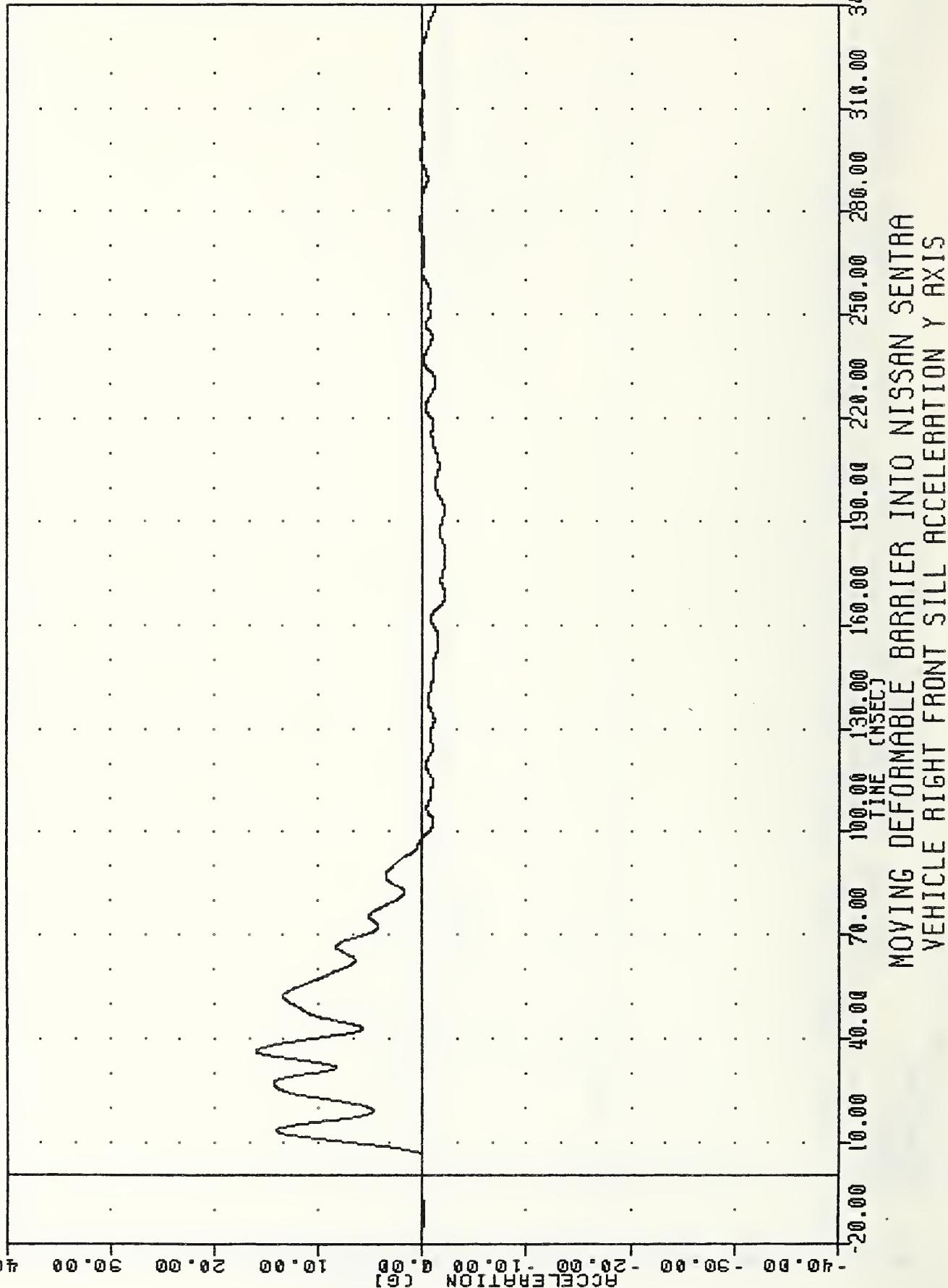


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE RIGHT FRONT SILL ACCELERATION X AXIS

VAT  
SI PROTECTION PROD YEH  
851200000000  
RFSY6

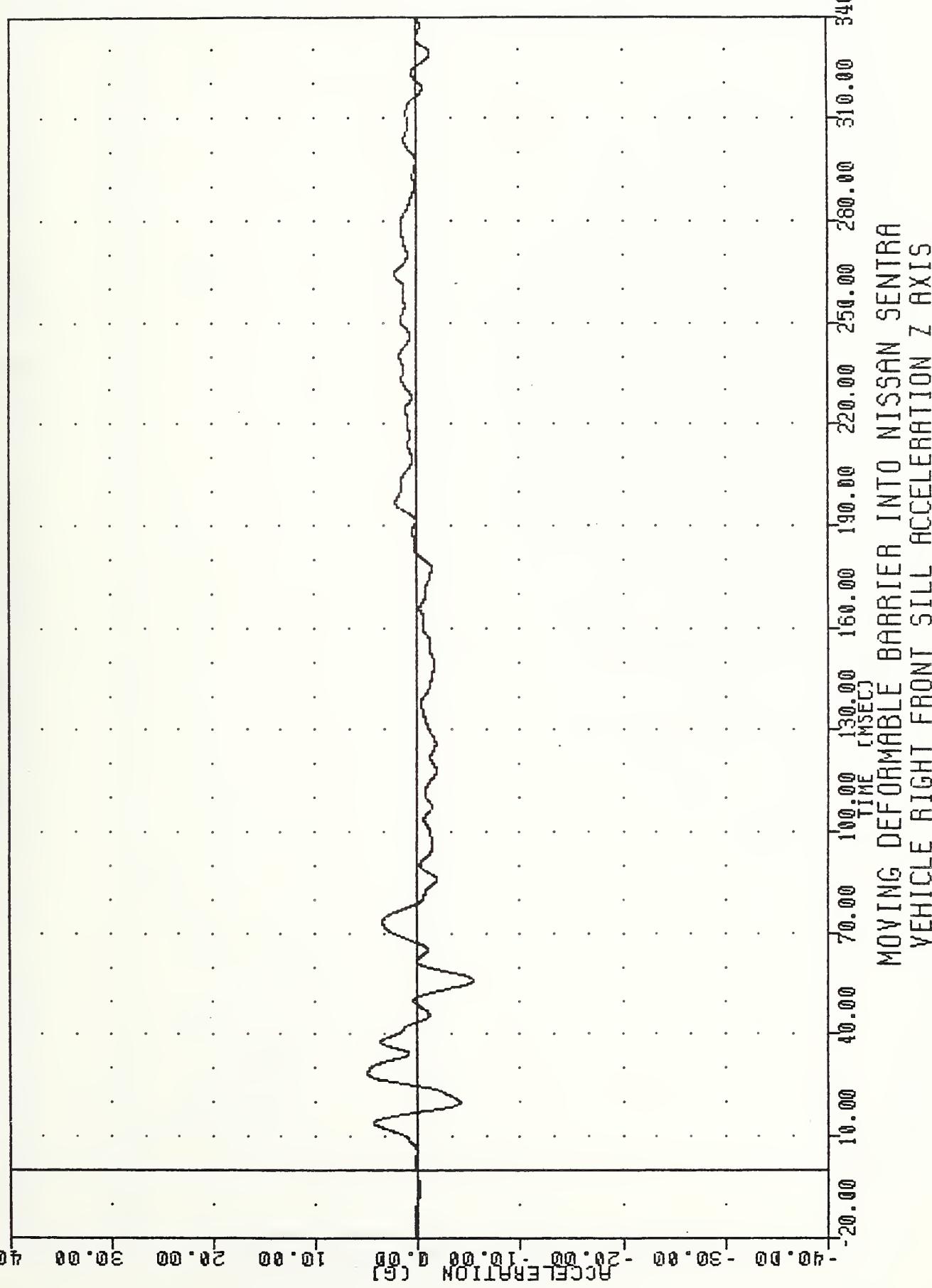
PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -2.14e 168.75 , 16.03 e 36.38



VRI , 850430  
SI PROTECTION PROD VEH  
851200000000  
RFSIG

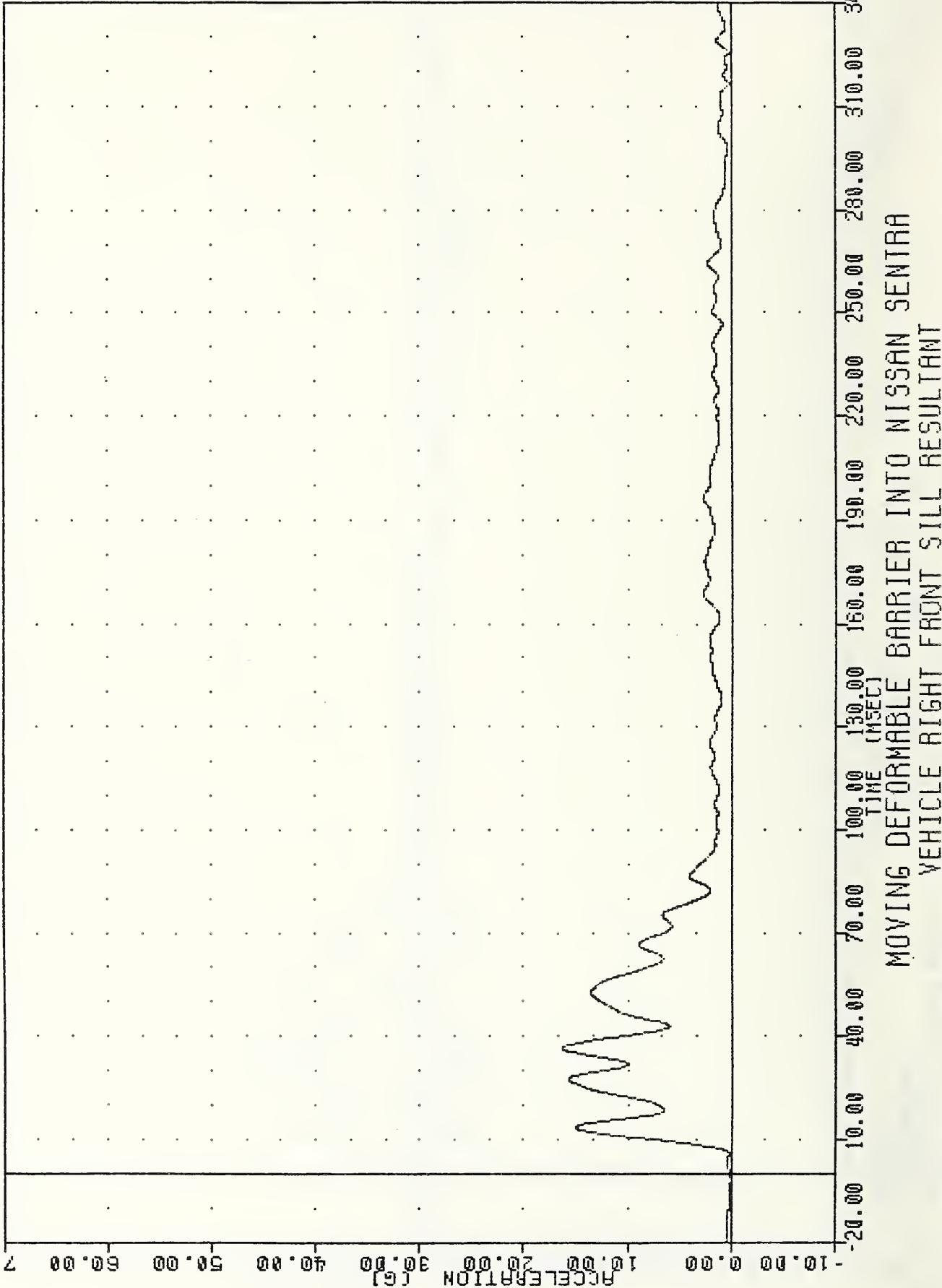
PLOT DATE 9-MAY-85 10:40:19  
FILTER = BLPP 100/ 316/-40  
MIN. MAX VALUES = -5.42@ 56.00 , 4.91 @ 28.50



VRT , 850430  
SI PROTECTION PROD VEH  
851200000000  
AF SRF

PLOT DATE 9-MAY-85 10:42:04

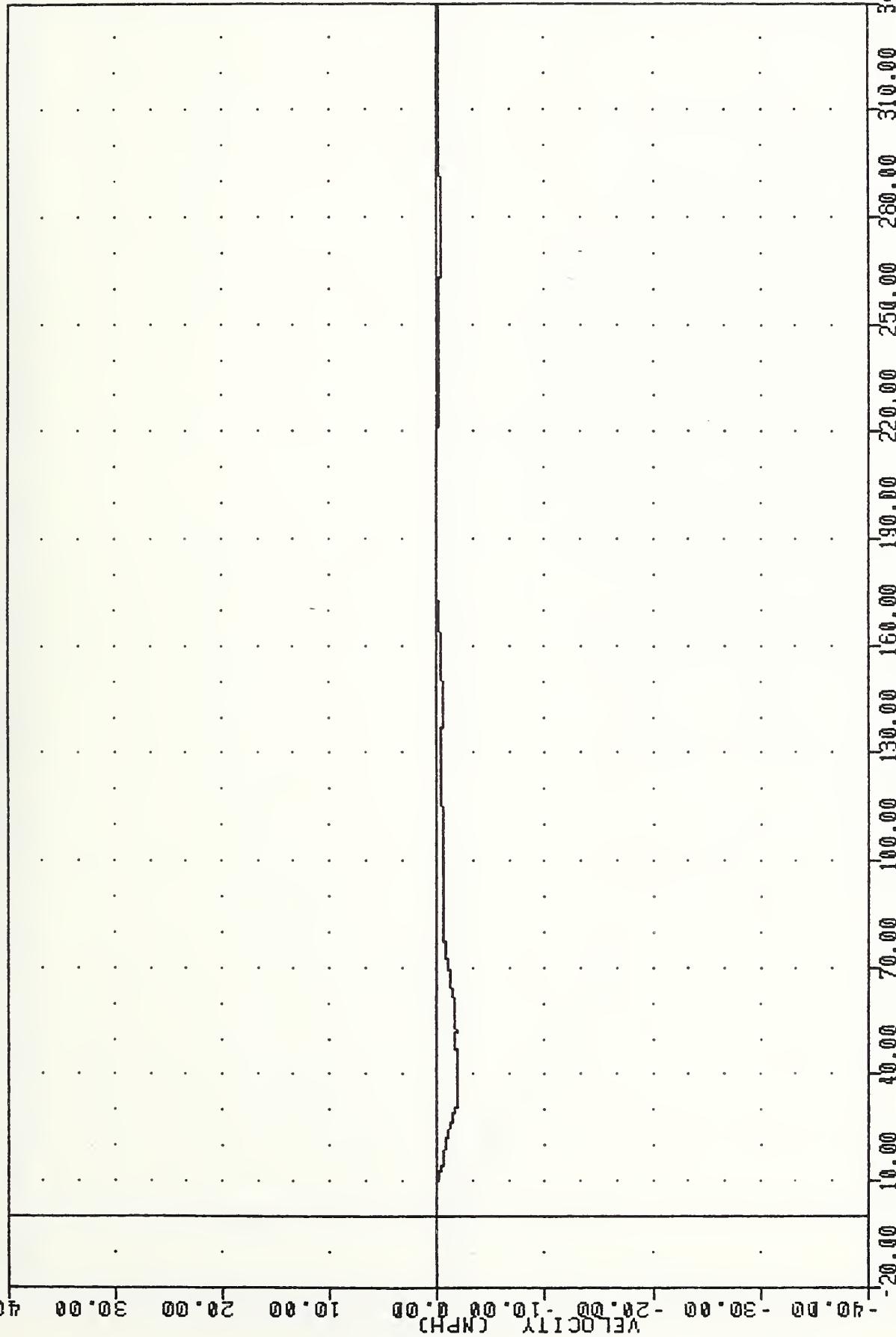
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = 0.028 -2.00 , 16.26 & 36.50



VRT , 850430  
SI PROTECTION PROB VEH  
851200000000  
RFSXV

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/-40  
MIN. MAX VALUES = -1.88@ 37.86 . 0.13 @ 190.25

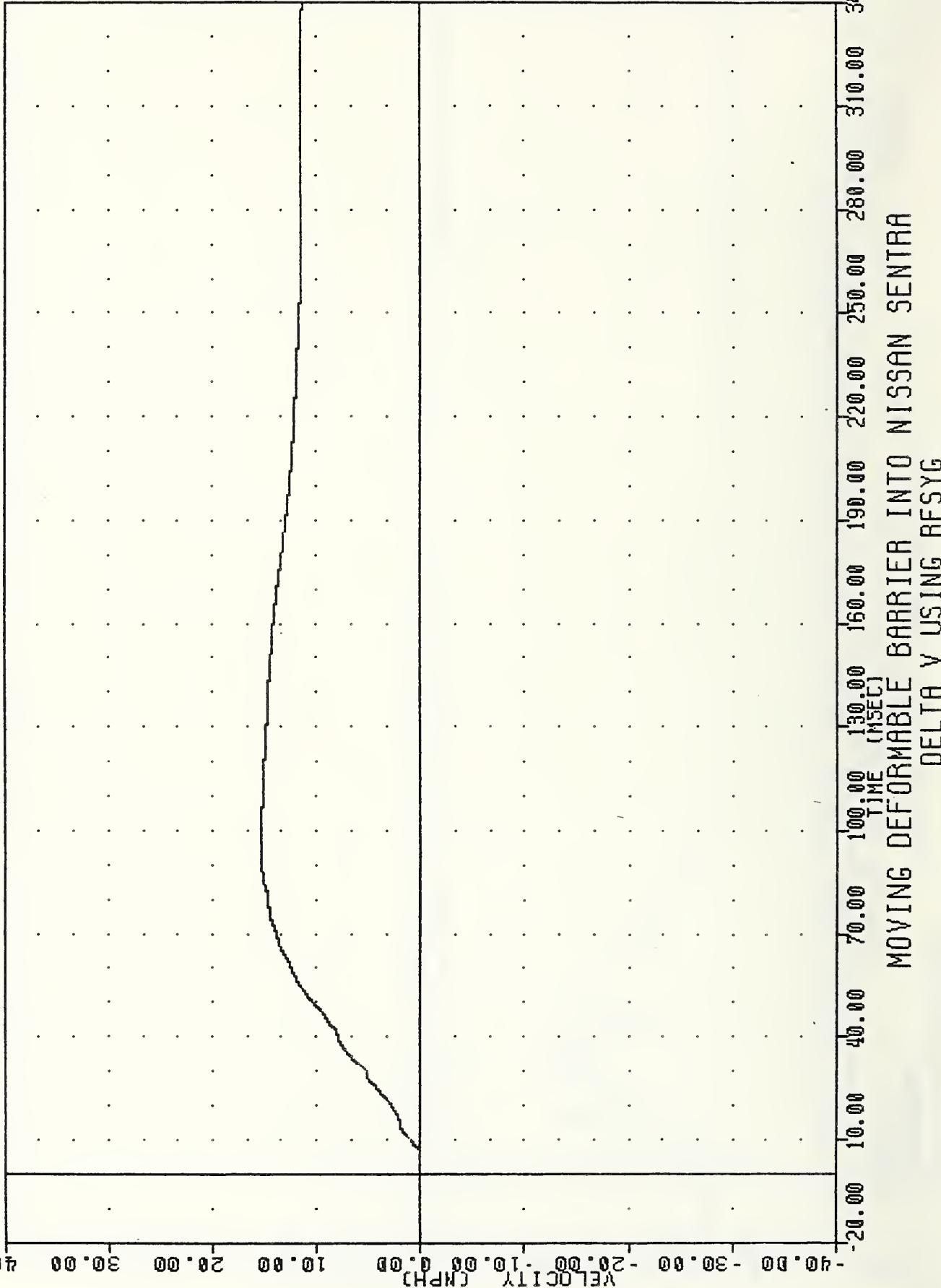


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING RFSXG

VAT , 850430  
SI PROTECTION PROD VEH  
851200000000 RFSY

PLOT DATE 9-MAY-85 10:40:19

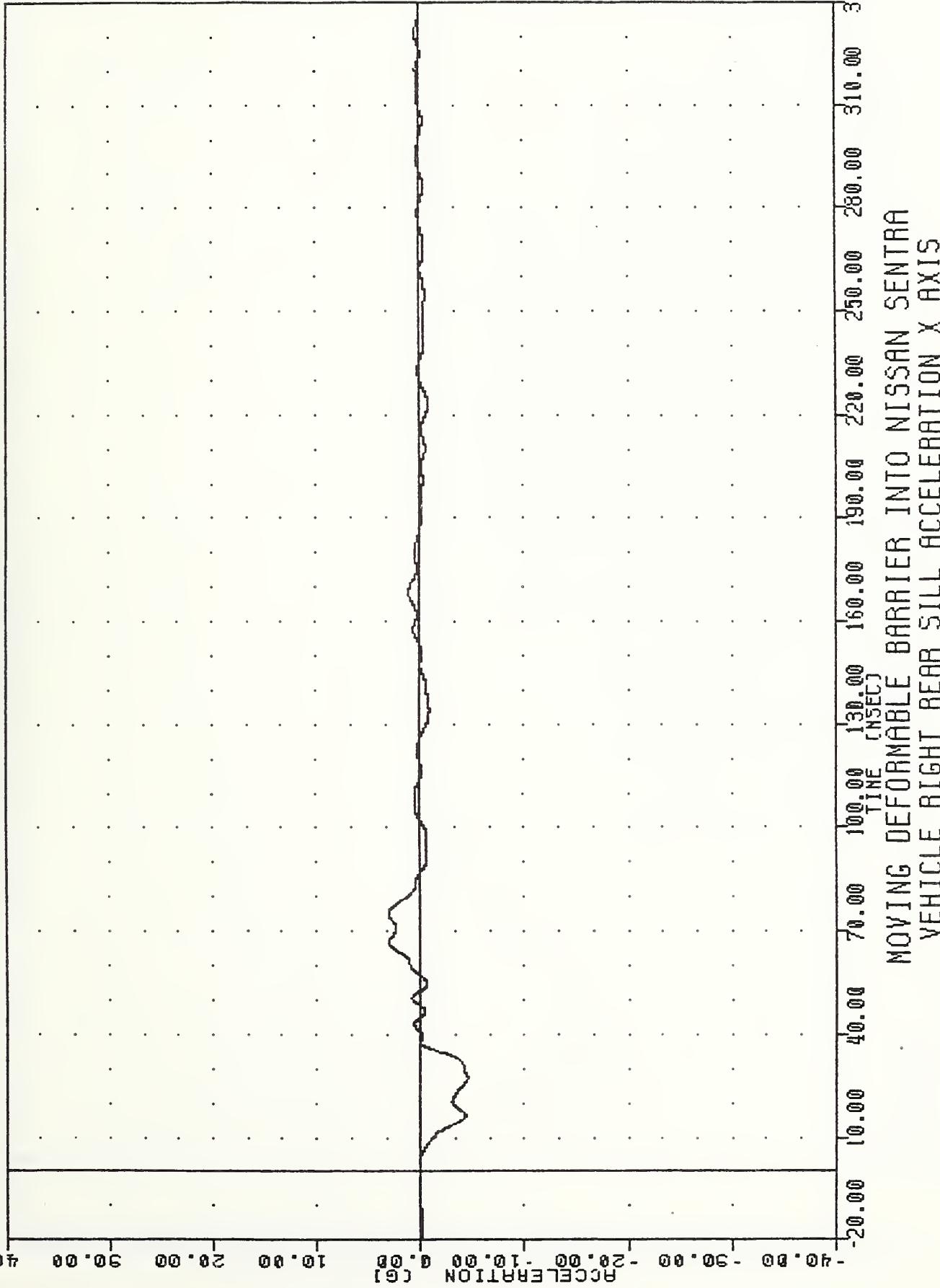
FILTER = BLPP 300/ 949/-40  
MIN. MAX VALUES = -0.038 5.25 , 15.42 & 96.25



VAT , 850430  
SI PROTECTION PROD YEH  
85120000000  
RASX6

PLOT DATE 9-MAY-85 10:40:19

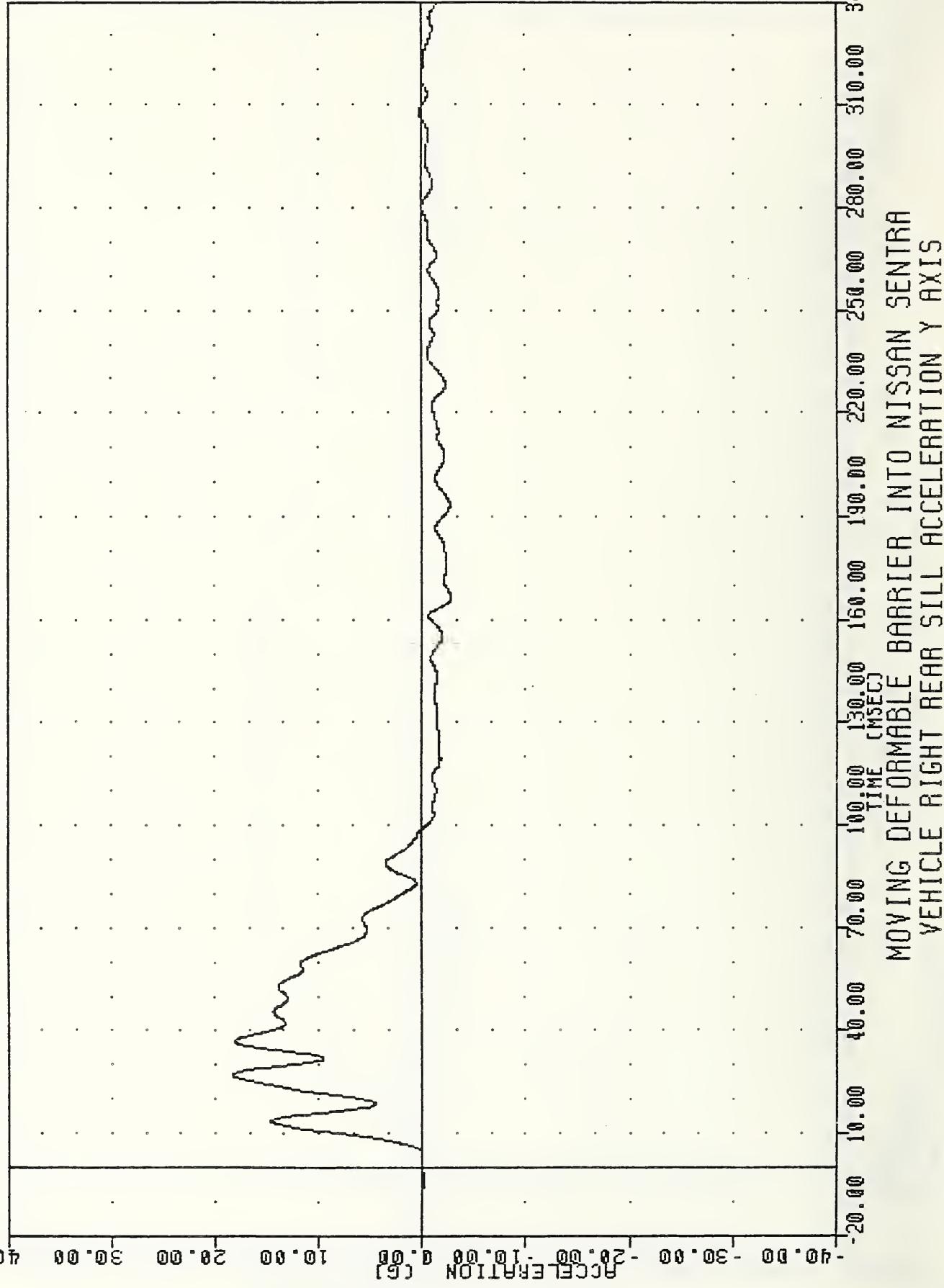
FILTER = BLPPF 100/ 316/-40  
MIN, MAX VALUES = -4.52@ 27.25 , 3.10 @ 75.13



VRI  
SI PROTECTION PROD VEH  
851200000000  
RRSYG

PLOT DATE 9-MAY-85 10:40:19

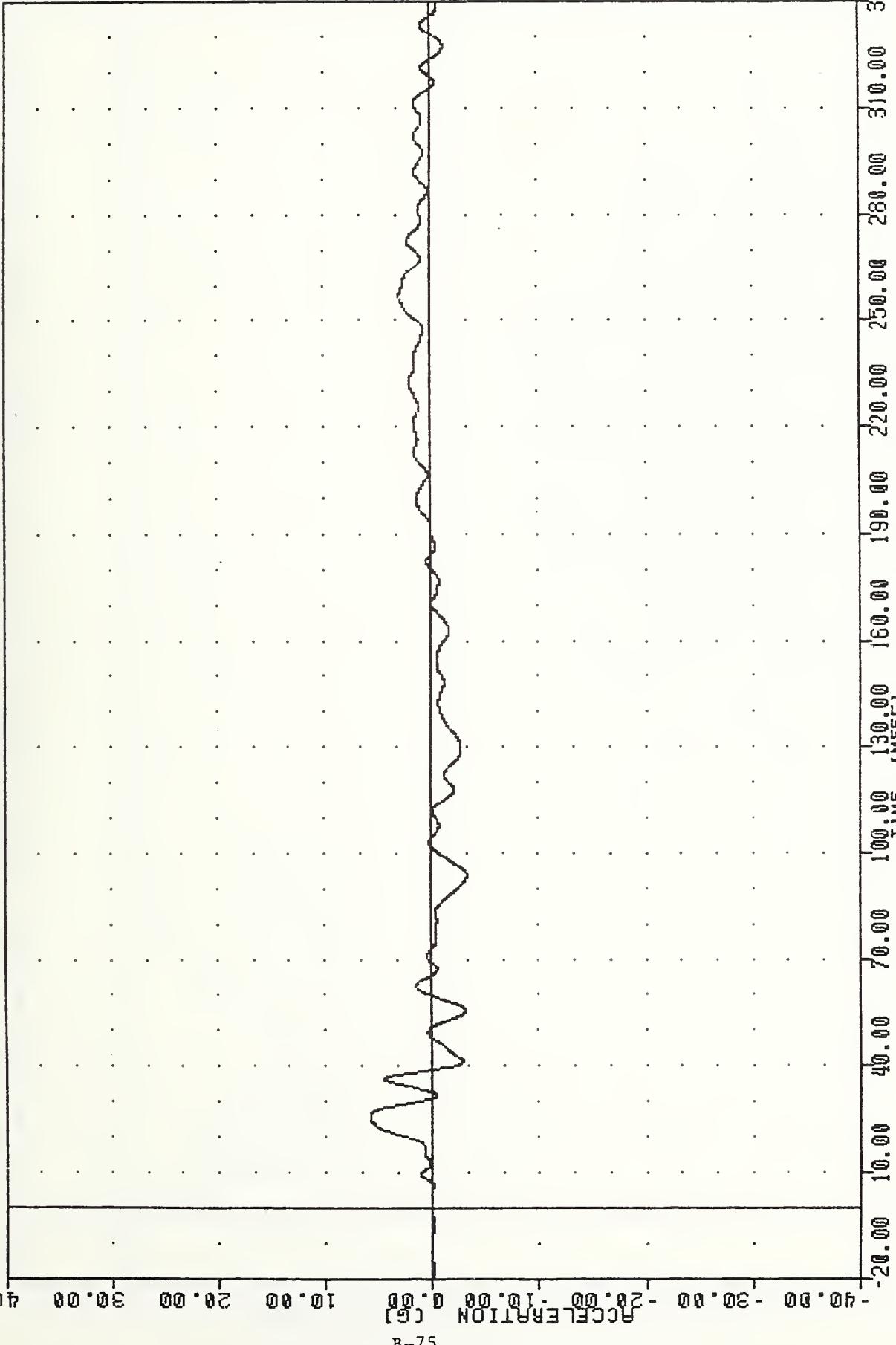
FILTER = BLPF 100/ 316/-40  
MIN. MAX VALUES = -2.75@ 166.63 . 18.30 @ 27.13



VRT  
SI PROTECTION PROD VEH  
85120000000  
ARSIG

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -3.298 93.75 . 5.84 & 26.00

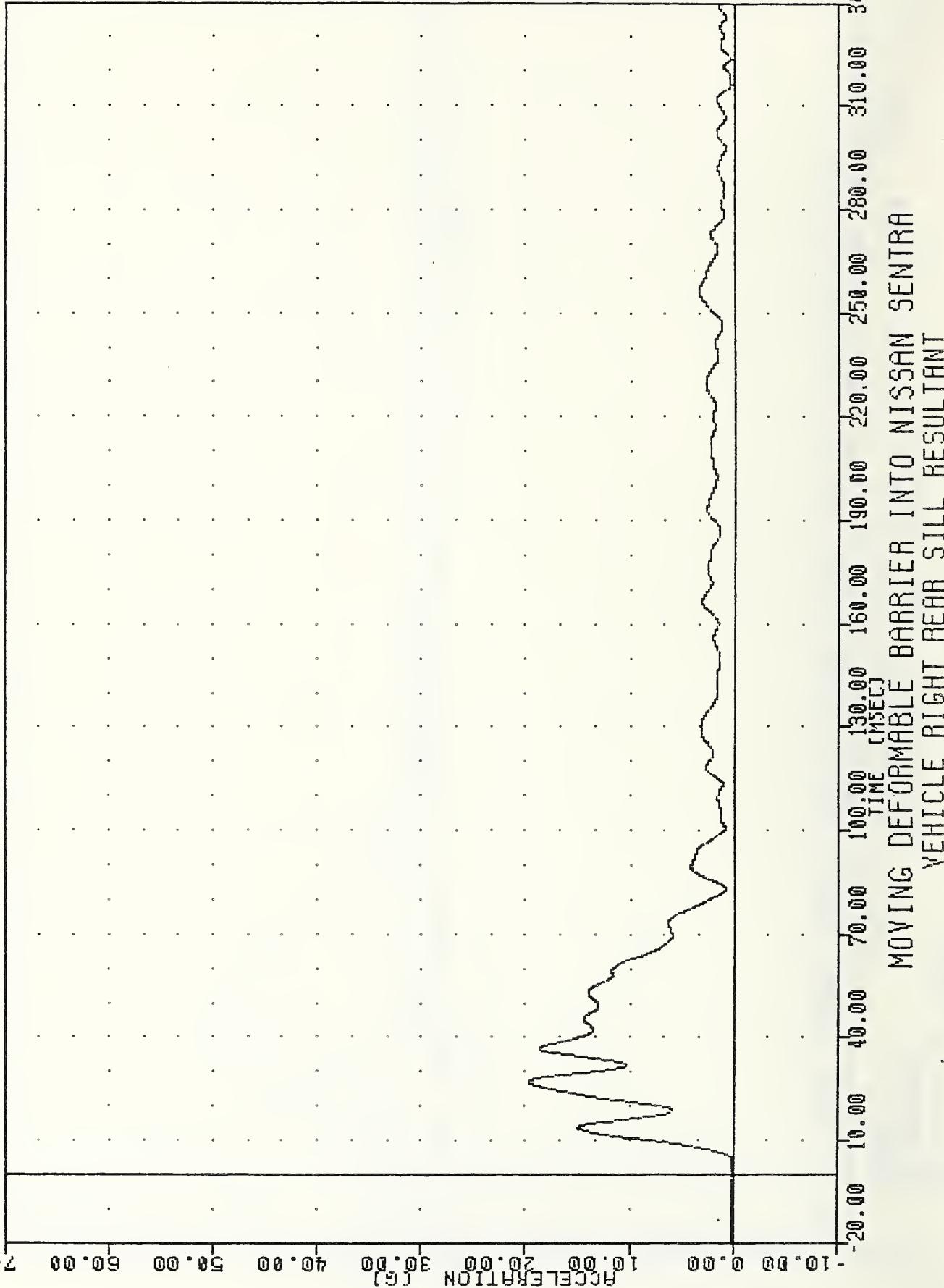


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE RIGHT REAR SILL ACCELERATION Z AXIS

VRI , 850430  
SI PROTECTION PROD VEH  
851200000000  
RRSRG

PLOT DATE 9-MAY-85 10:42:04

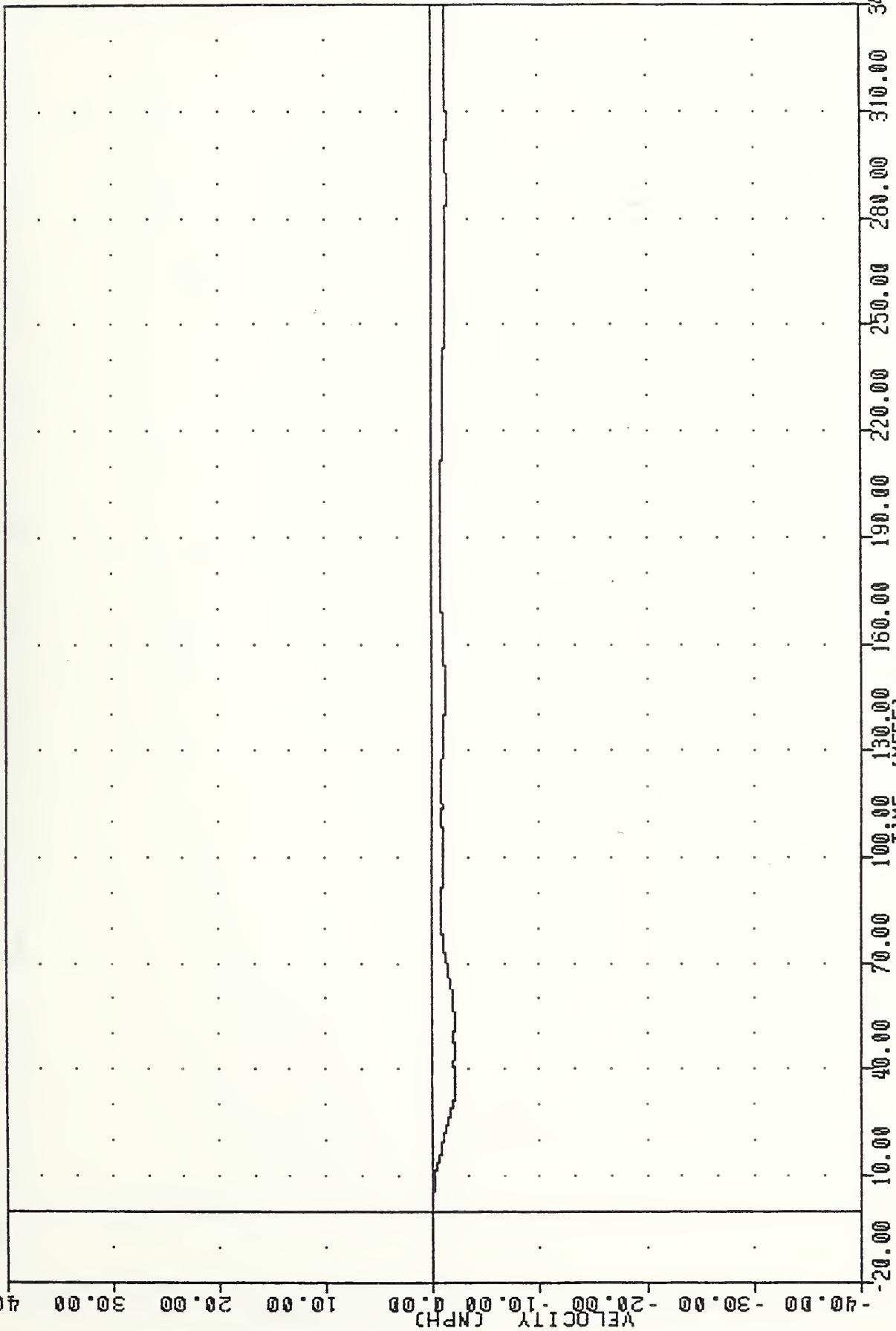
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = 0.038 -0.86 , 19.67 & 27.00



VAT , 850430  
SI PROTECTION PROD VEH  
85120000000  
ARRSXV

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = -2.088 38.25 . 0.00 & -20.00



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING RRSXG

VAT 850430  
SI PROTECTION PROD VEH  
85120000000  
RASYY

PLT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/ -40  
MIN. MAX VALUES = -0.018 -4.88 , 17.90 e 97.75

-40.00 -30.00 -20.00 -10.00 10.00 20.00 30.00 40.00

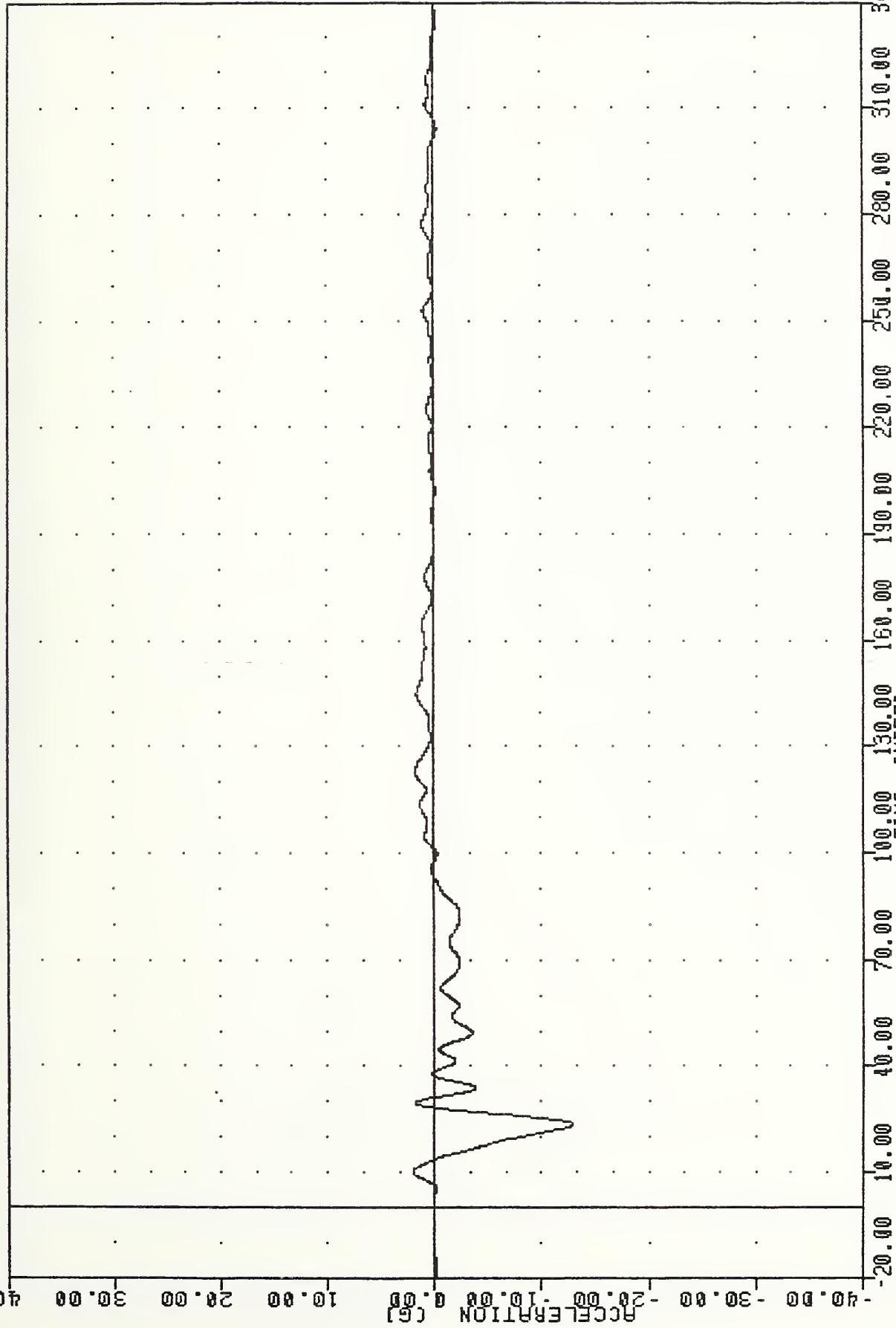
VELOCITY (MPH)

B-78

TIME [SEC]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING RRSYG

VRI , 850430  
SI PROTECTION PROD VEH  
851200000000  
RDXG

PLOT DATE 9-MAY-85 10:40:19  
FILTER = BLPF 100/ 316/-40  
MIN. MAX VALUES = -12.91@ 23.63 , 2.04 @ 10.38

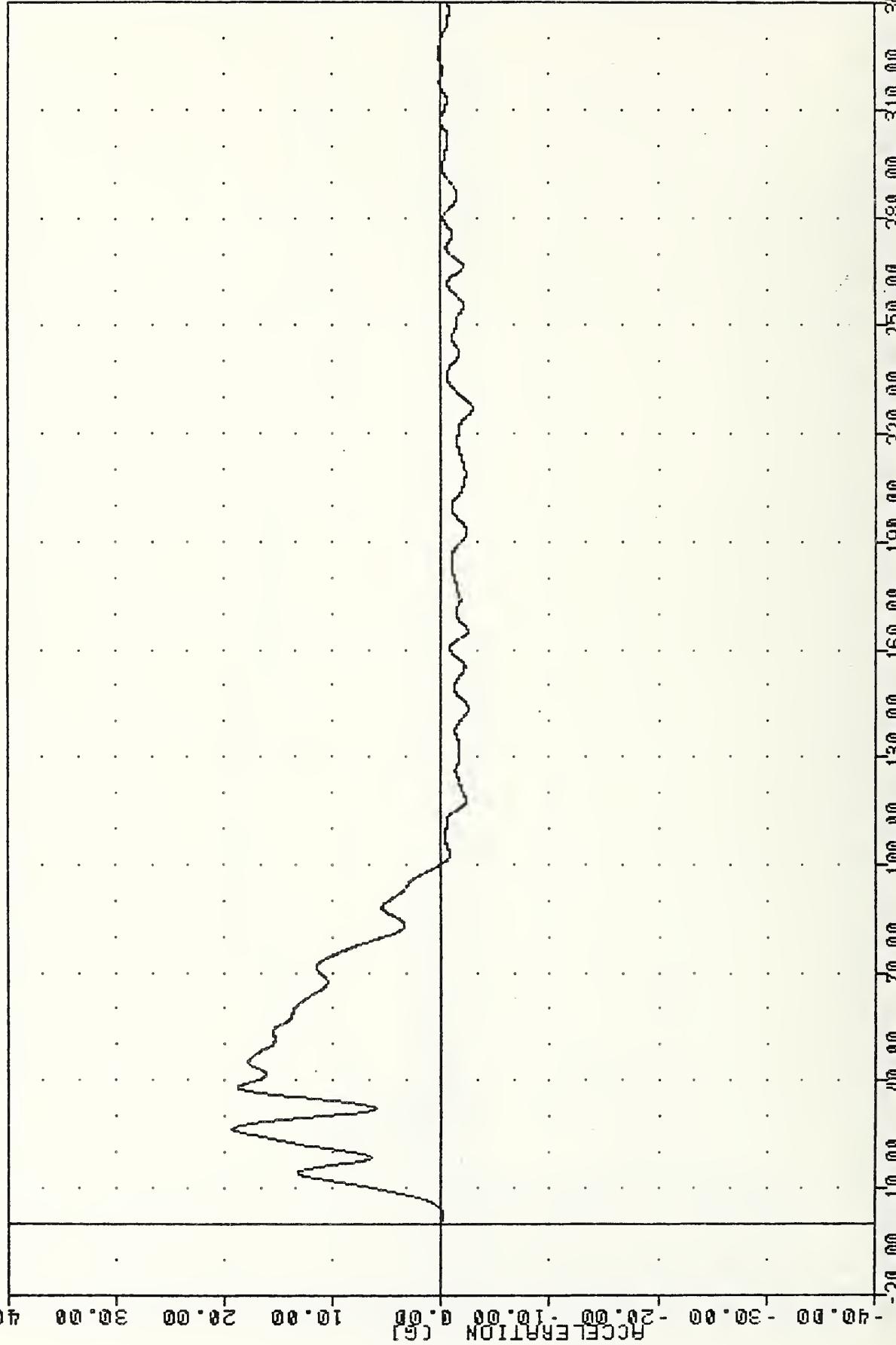


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE REAR DECK ACCELERATION X AXIS

YRT , 850430  
SI PROTECTION PROD VEH  
85120000000  
ADKYG

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 100/ 316/ -40  
MIN, MAX VALUES = -2.888 227.13 , 19.28 & 26.50

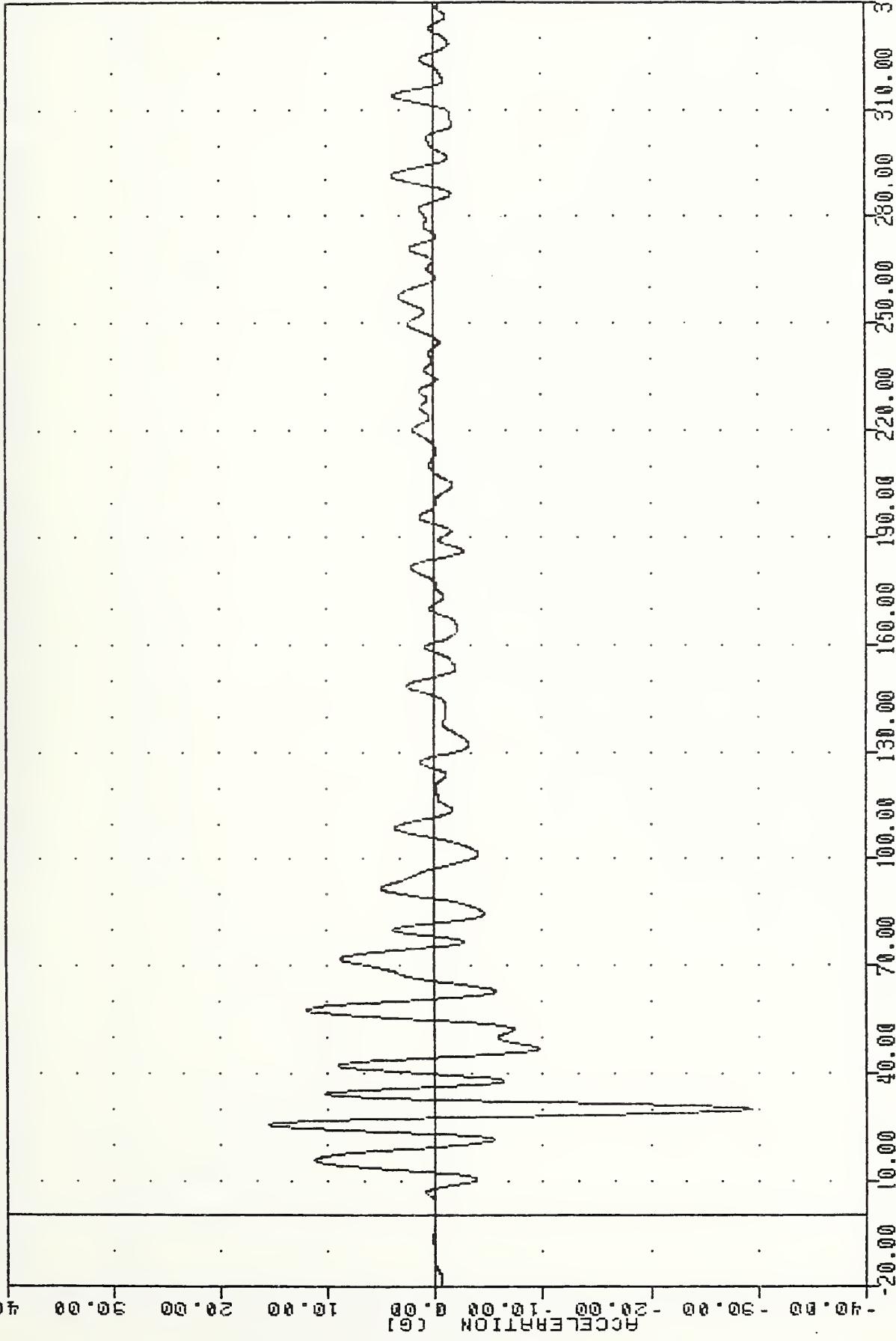


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE REAR DECK ACCELERATION Y AXIS

VAT  
SI PROTECTION PROD VEH  
8512D0000000  
RDKZ6

PLT DATE 9-MAY-85 10:40:19

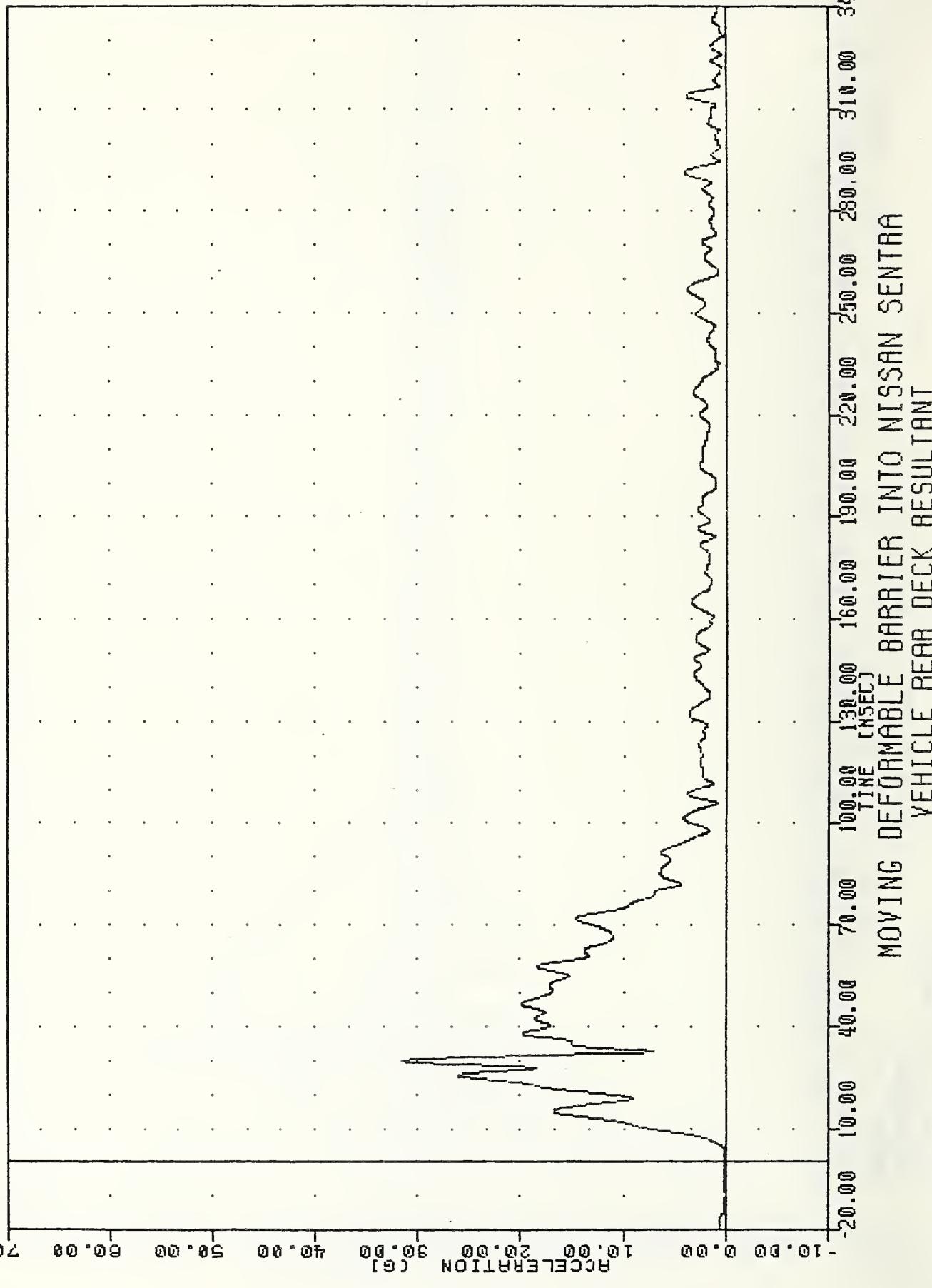
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -29.438 29.88 . 15.64 & 25.63



-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00  
TIME [SEC]  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE REAR DECK ACCELERATION Z AXIS

VAT , 650430  
SI PROTECTION PAD YEH  
8512D0000000  
RDKRG

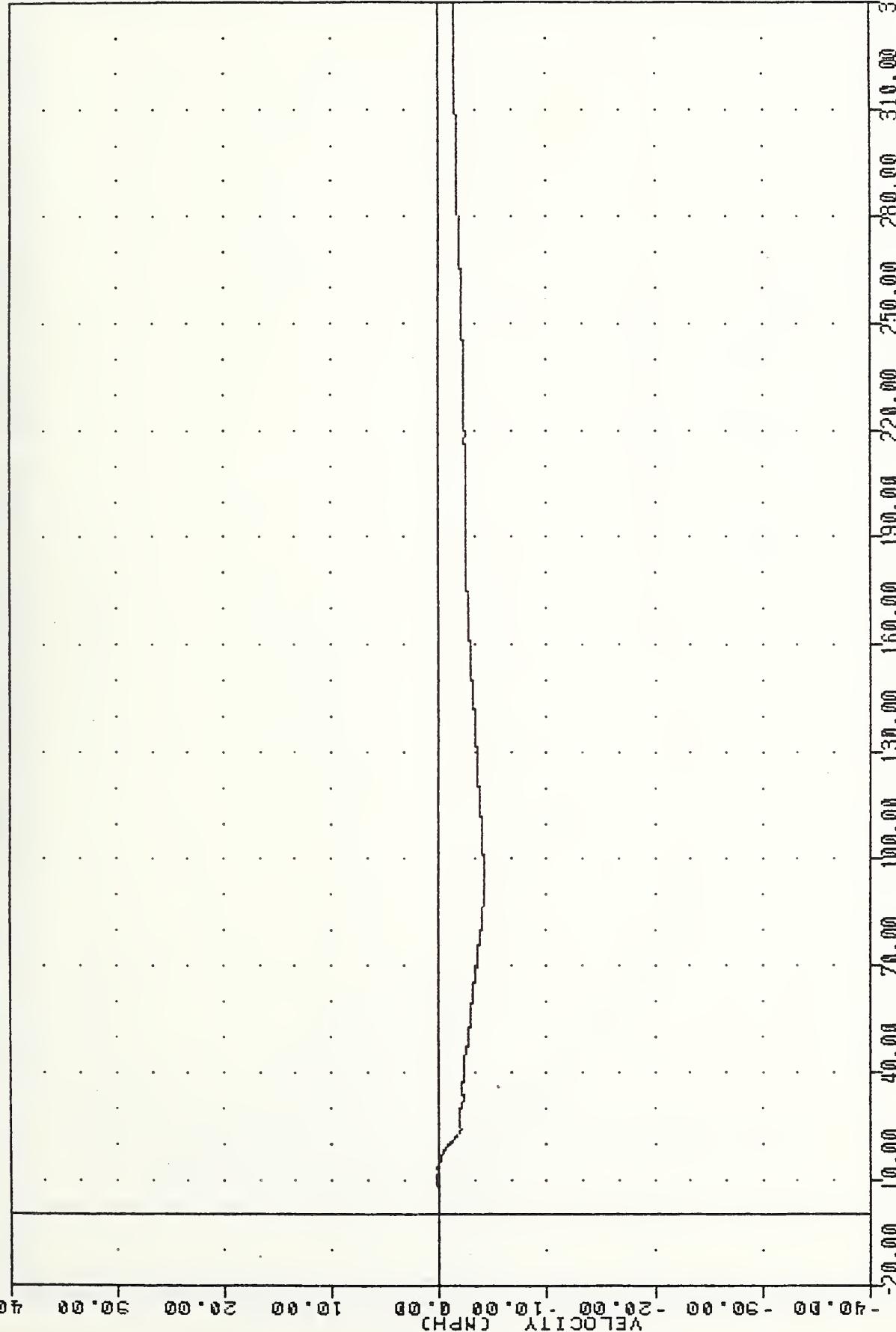
PLT DATE 9-MAY-85 10:42:04  
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = 0.03 & -9.75 , 31.62 & 29.75



VAT  
SI PROTECTION PROD VEH  
85120000000  
ROKXY

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300 / 949/-40  
MIN, MAX VALUES = -4.14 e 90.25 . 0.19 e 10.75



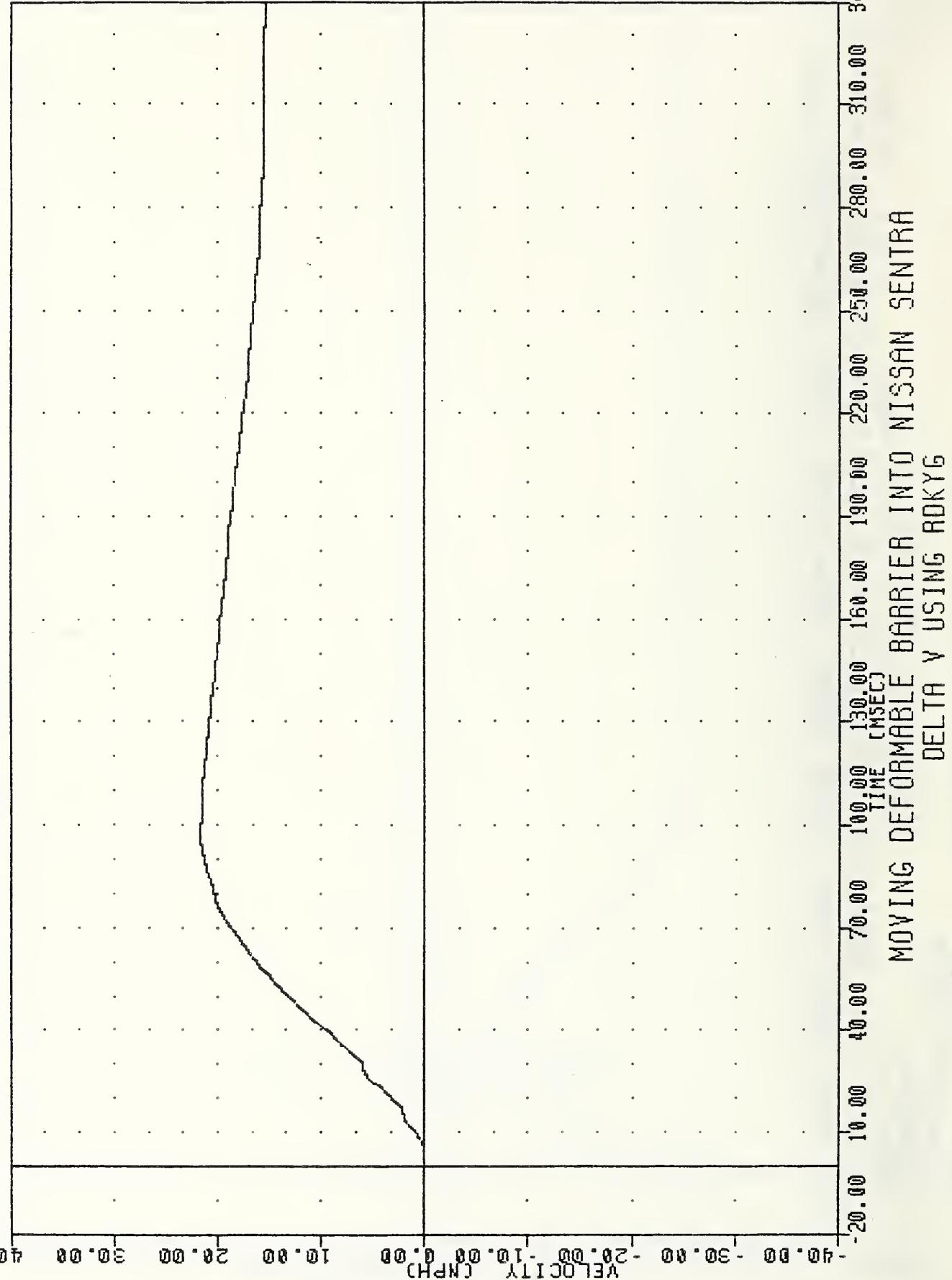
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING RDKXG

VRI , 850430  
SI PROTECTION PROD VEH  
851200000000  
RDKYV

PL01 DATE 9-MAY-85 10:40:19

FILTER = BLPPF 300/ 949/ -40  
MIN, MAX VALUES = 0.00 & -15.50 .

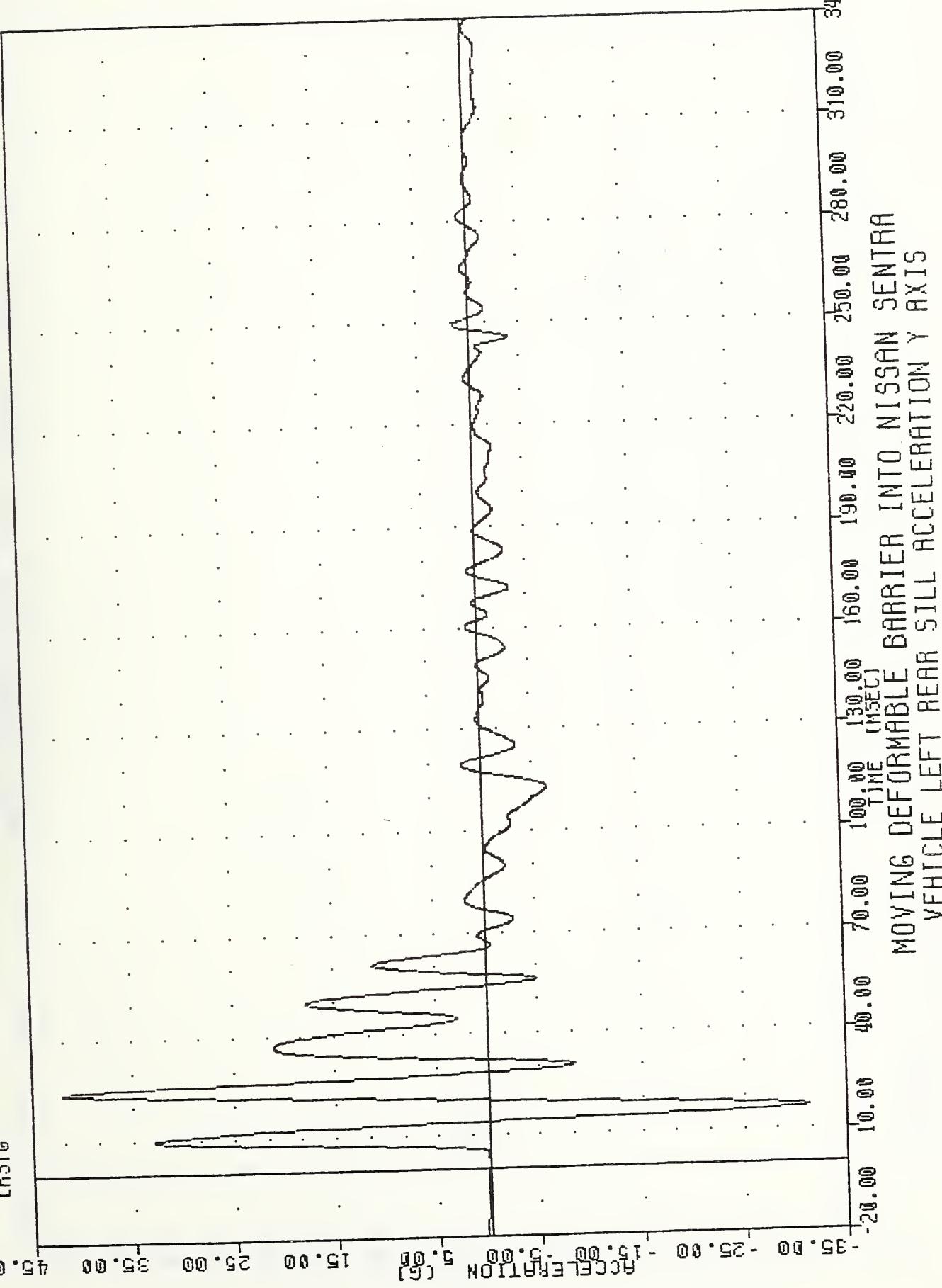
21.63 & 98.00



YRT  
SI PROTECTION PROD VEH  
85120000000  
LRSYG

PLOT DATE 9-MAY-85 10:40:19

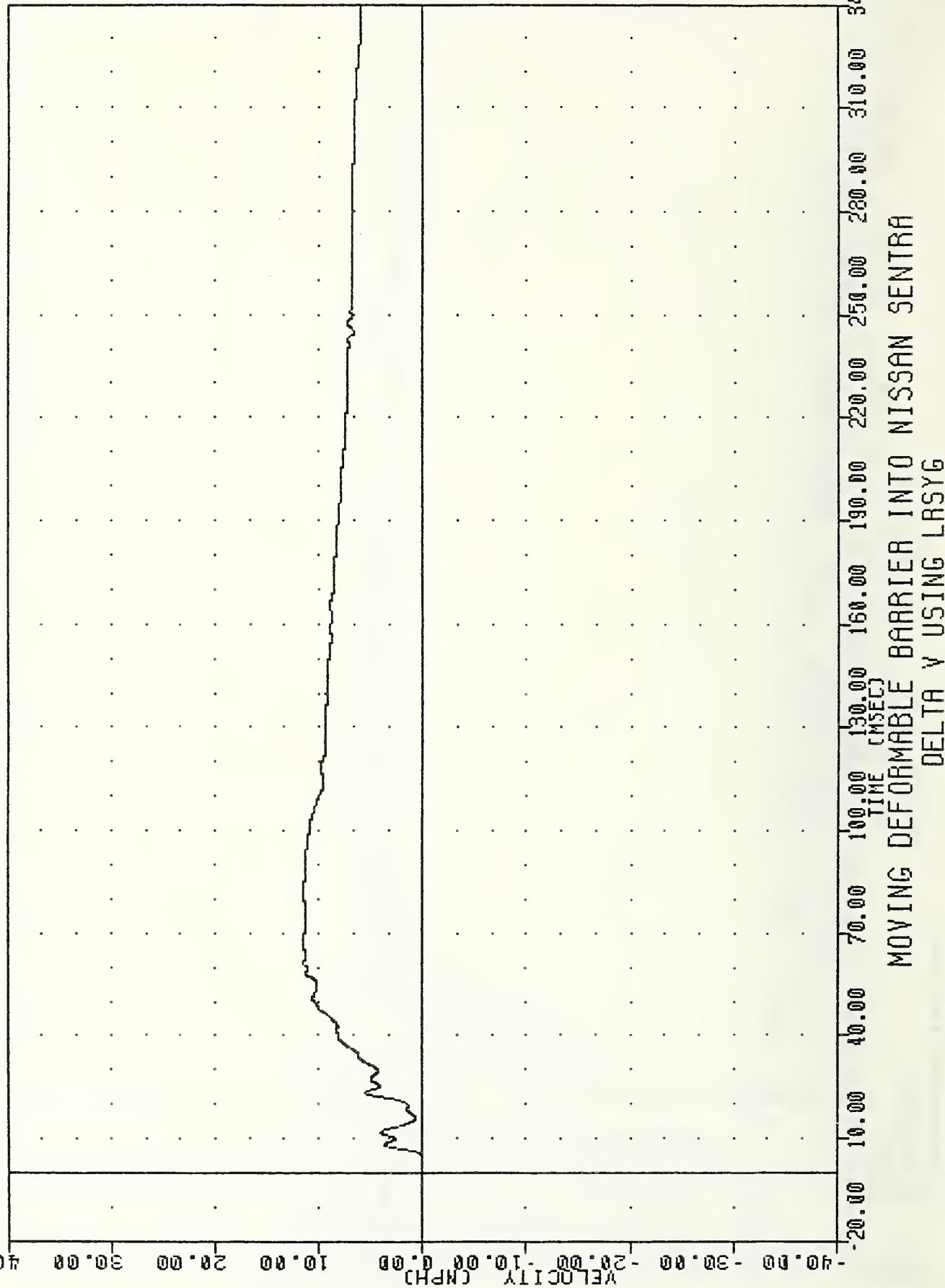
FILTER = BLPF 100/ 316/-40  
MIN. MAX VALUES = -31.488 16.88 , 42.00 & 24.13



VRI , 850430  
SI PROTECTION PROD VEH  
851200000000  
LRSYV

PLT DATE 9-MAY-85 10:40:19

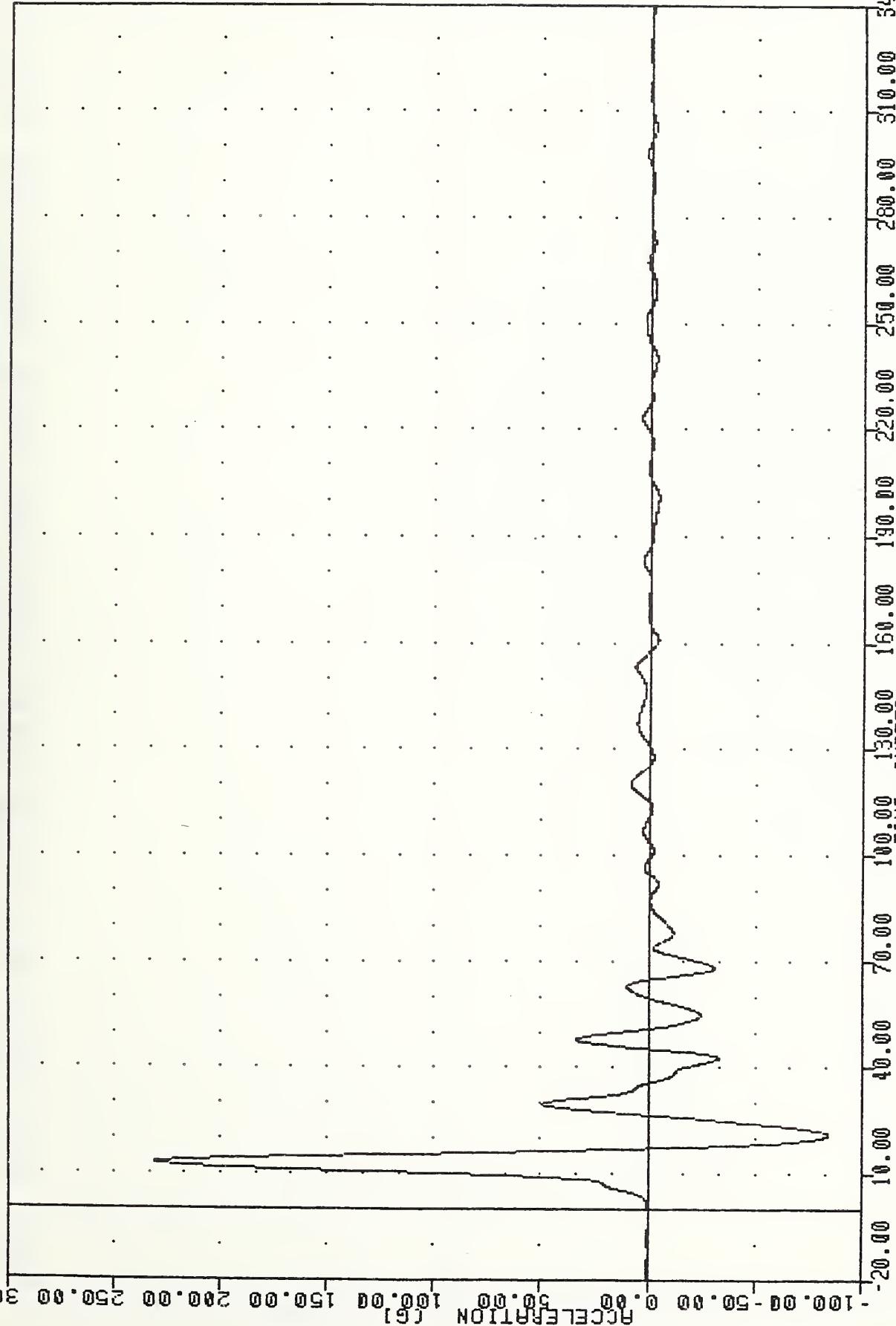
FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = 0.00e -20.00  
11.56 e 66.38



VAT  
SI PROTECTION PROD VEH  
851200000000  
LFDY61

PLOT DATE 9-MAY-85 10:40:19

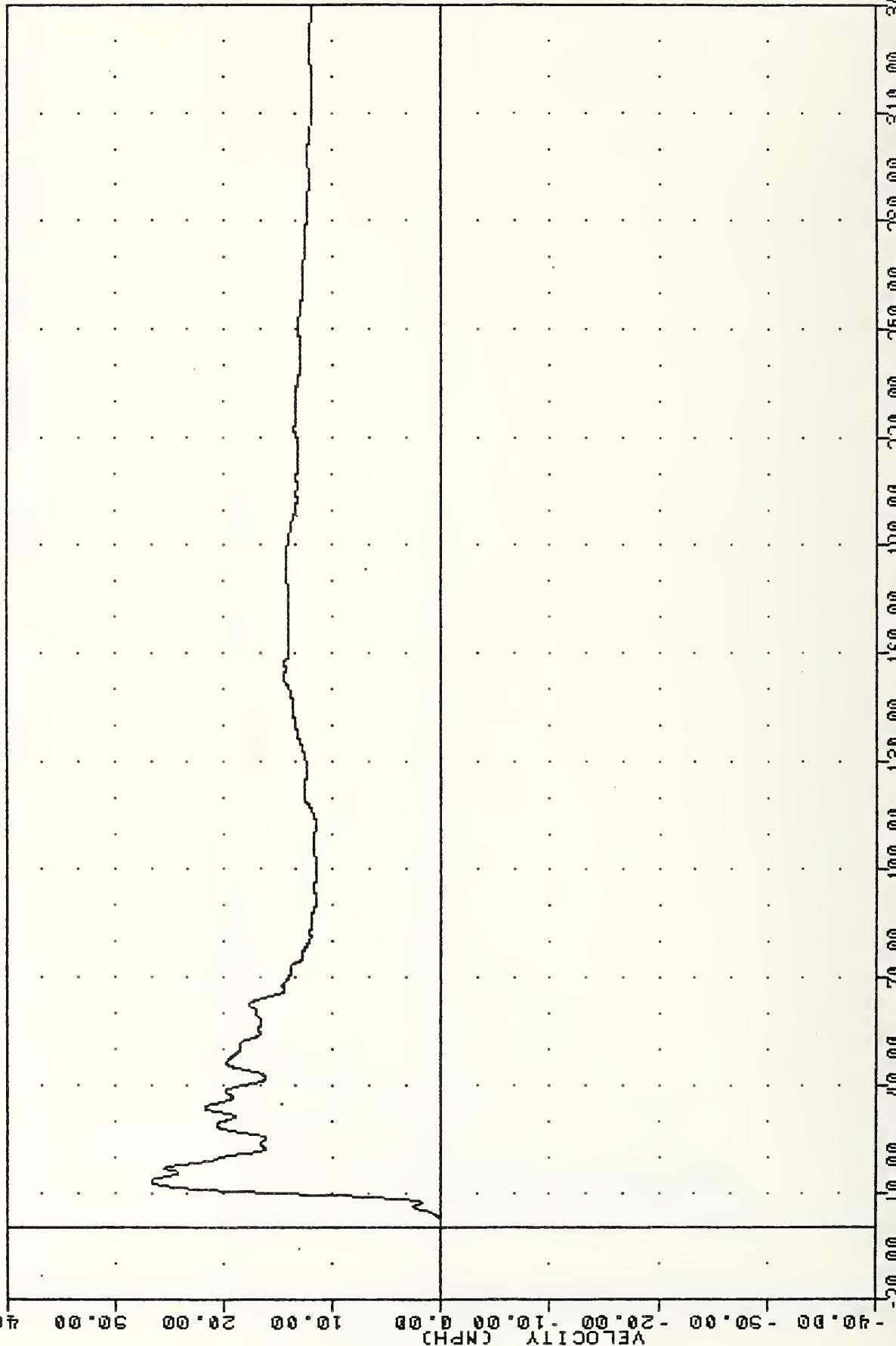
FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -84.238 21.25 , 230.66 & 13.00



TIME (msec)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
VEHICLE LEFT FRONT DOOR (POSITION 6) ACCELERATION Y AXIS

VAT , 850430  
SI PROTECTION PROD YEH  
851200000000  
LFDY1

PLT DATE 9-MAY-85 10:40:19  
FILTER = BLPP 300 / 949 / -40  
MIN, MAX VALUES = 0.00 & -20.00 , 26.63 & 13.13

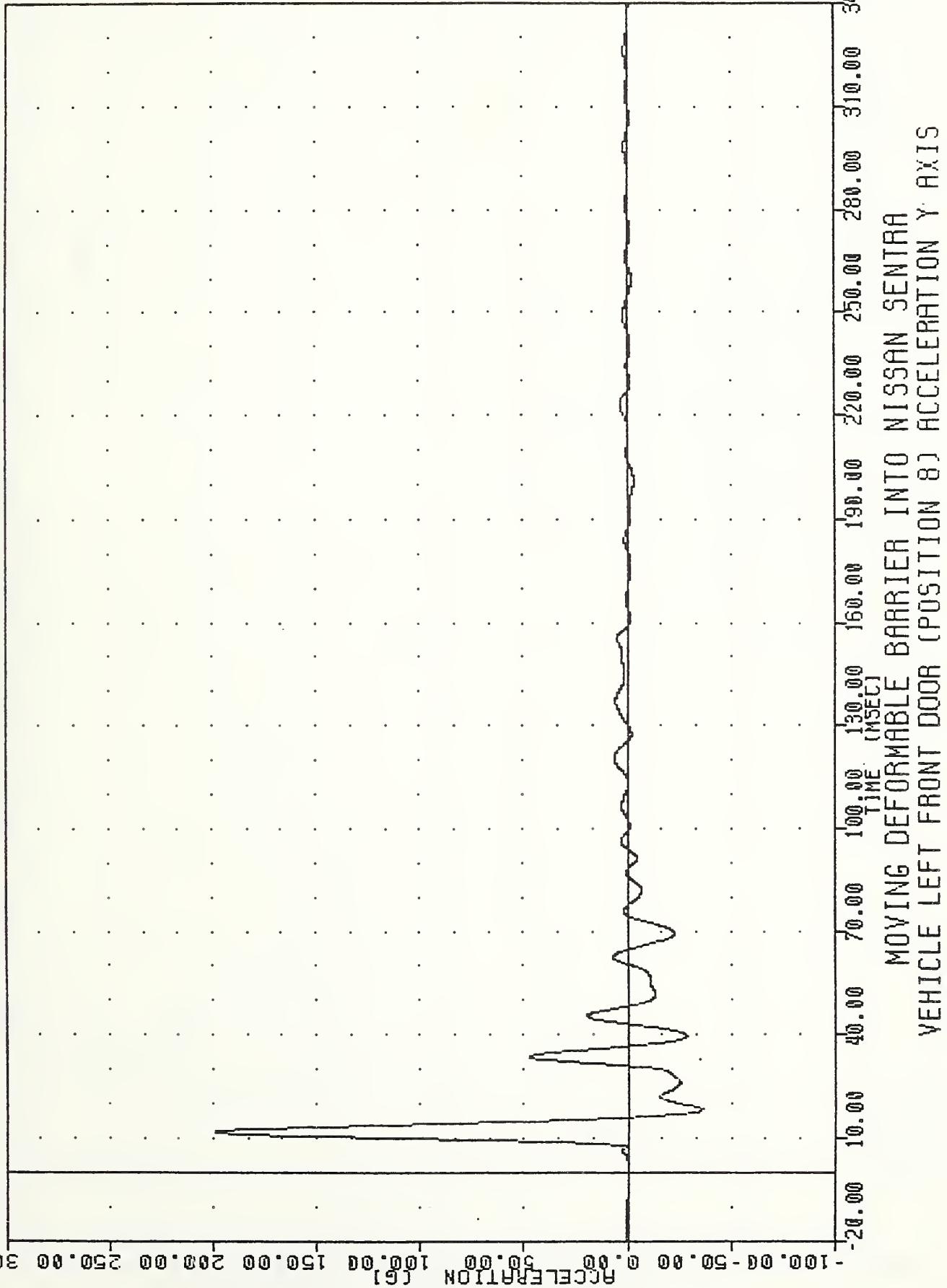


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING LFDY1

VRT  
SI PROTECTION PROD VEH  
85120000000  
LFDY62

PLOT DATE 9-MAY-85 10:40:19

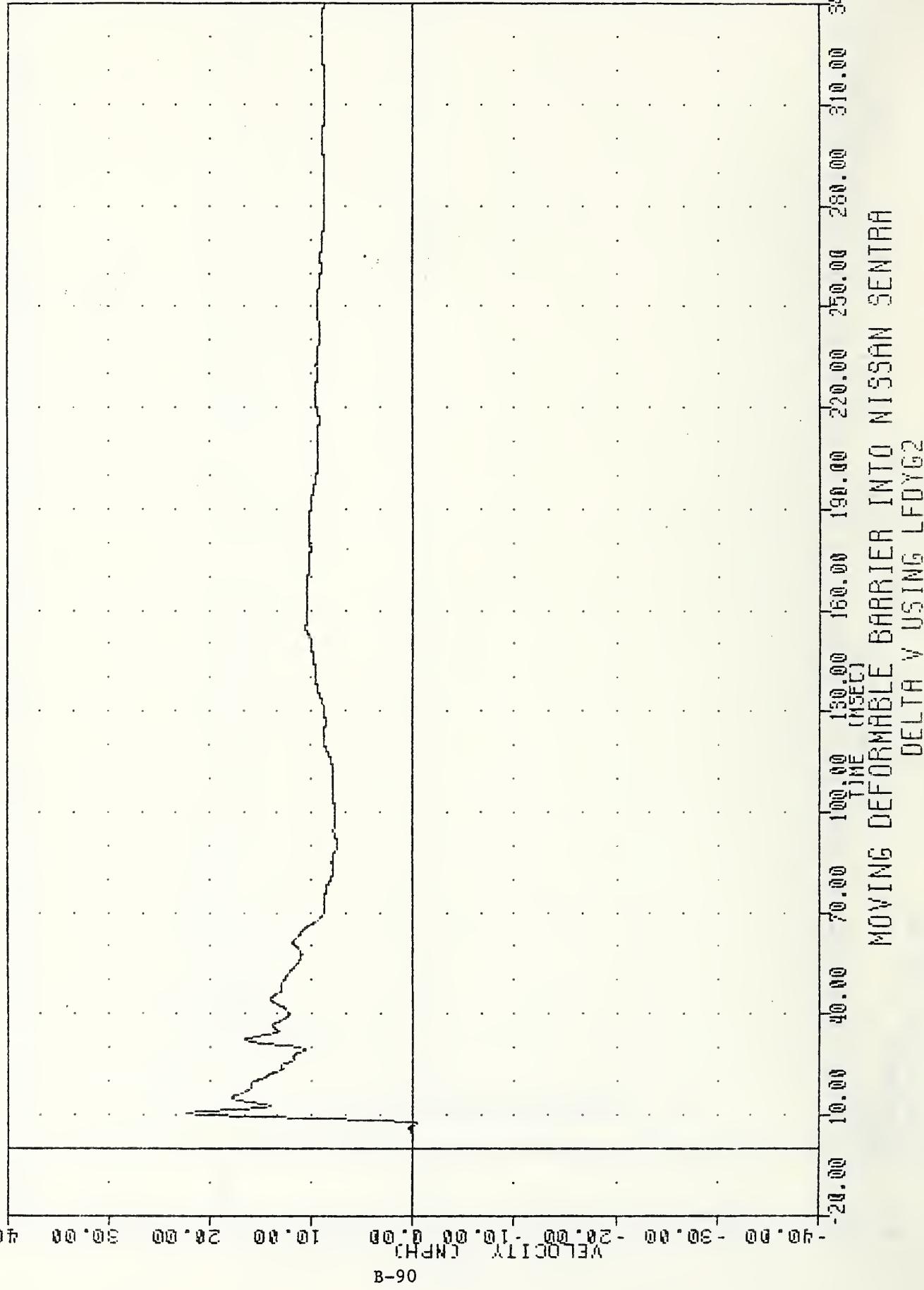
FILTER = BLPF 100/ 316/ -40  
MIN. MAX VALUES = -36.028 18.25 , 198.95 & 11.75



VRT , 650430  
SI PROTECTION PROD VEH  
9512000000000  
LFDY42

PLOT DATE 17-JUN-85 15:54:23

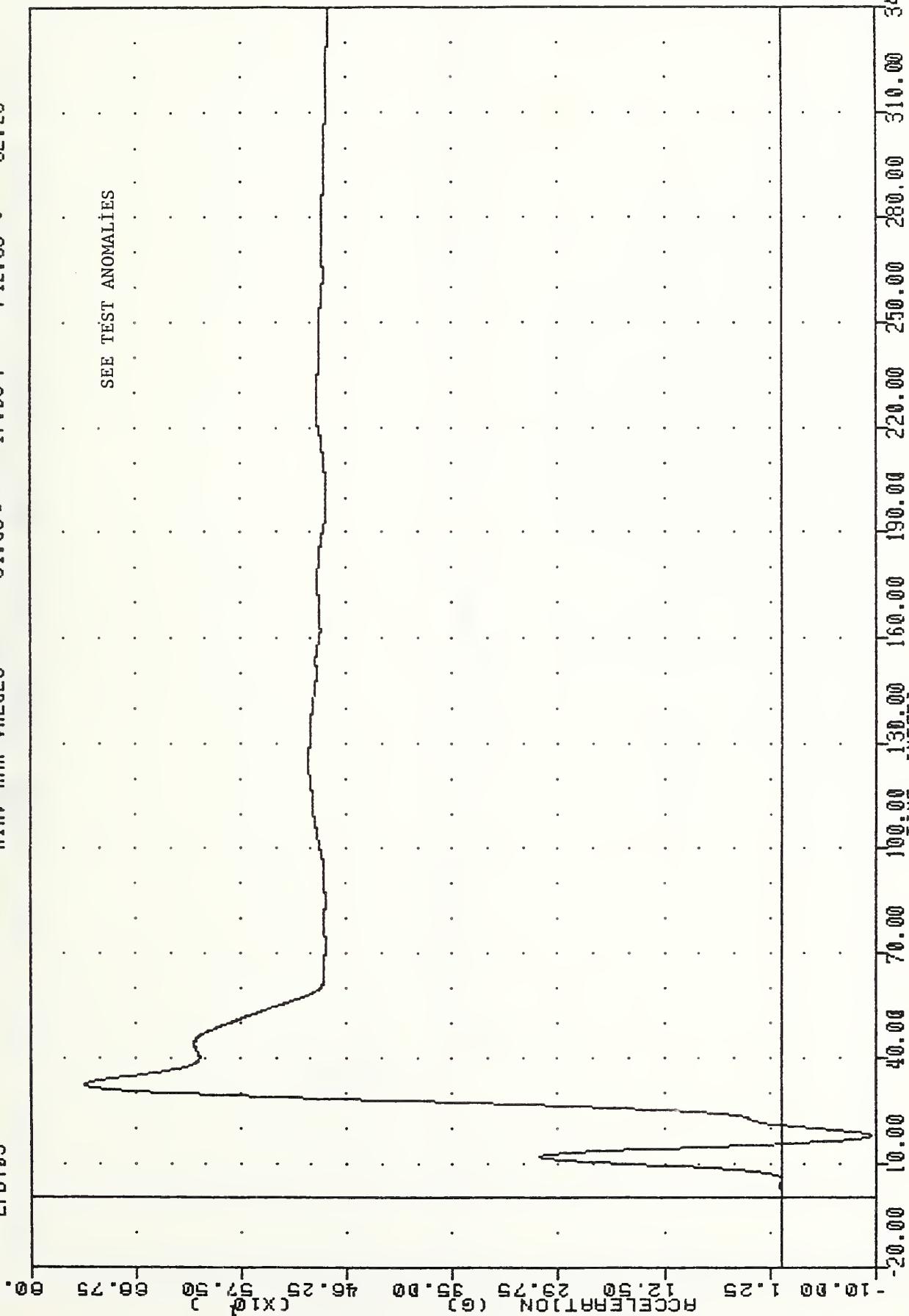
FILTER = BLFF 3000/ 949/-40  
MIN. MAX VALUES = -0.438 7.38  
22.22 8 10.50



YAT  
SI PROTECTION PROD YEH  
85120000000  
LFDY63

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPPF 100/ 316/-40  
MIN. MAX VALUES = -94.68 & 17.63 , 742.65 & 32.25

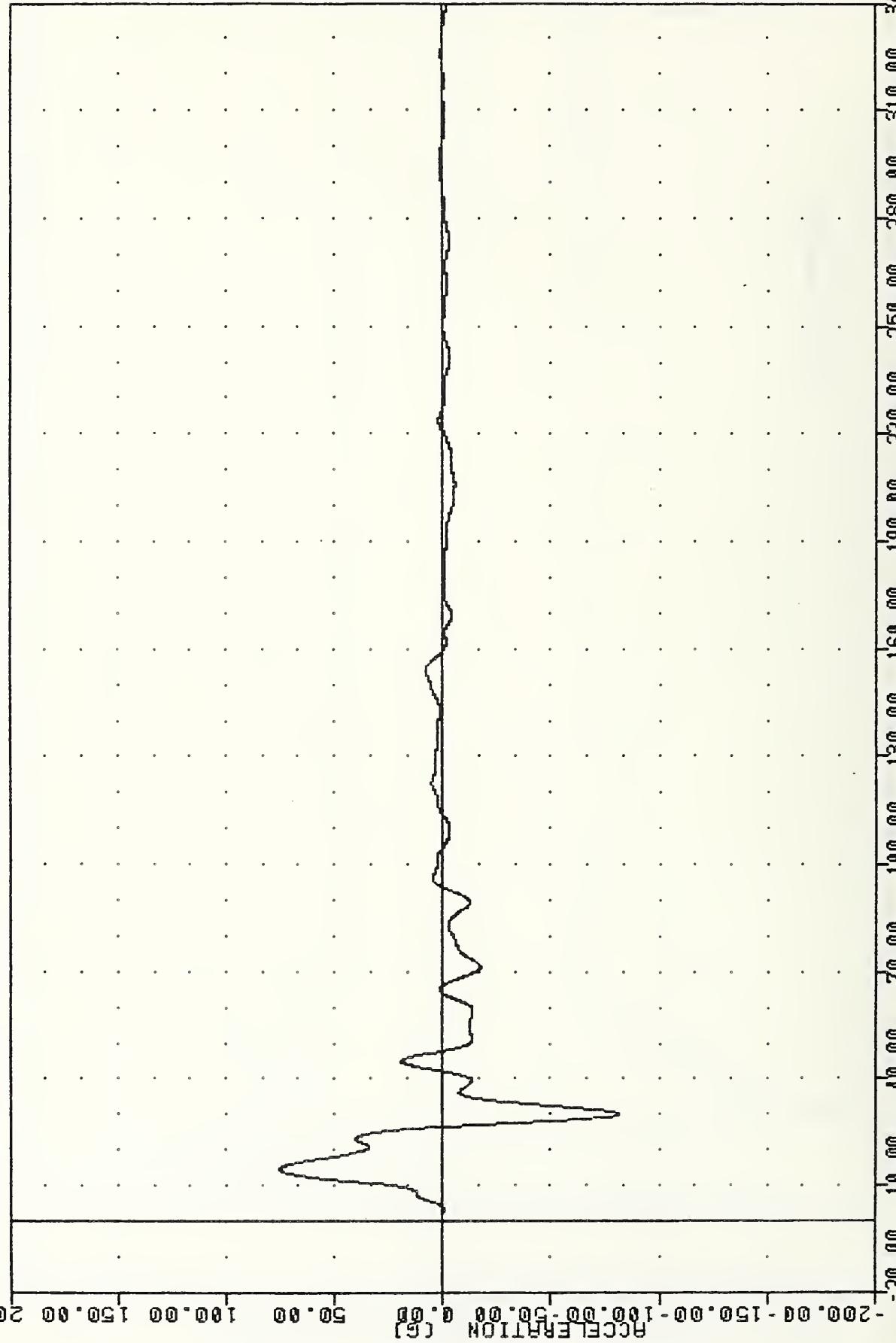


Moving deformable barrier into Nissan Sentra  
Vehicle left front door position 9) Acceleration Y axis

VRT  
SI PROTECTION PROD VEH  
851200000000  
LFOY64

PLOT DATE 9-MAY-85 10:40:19

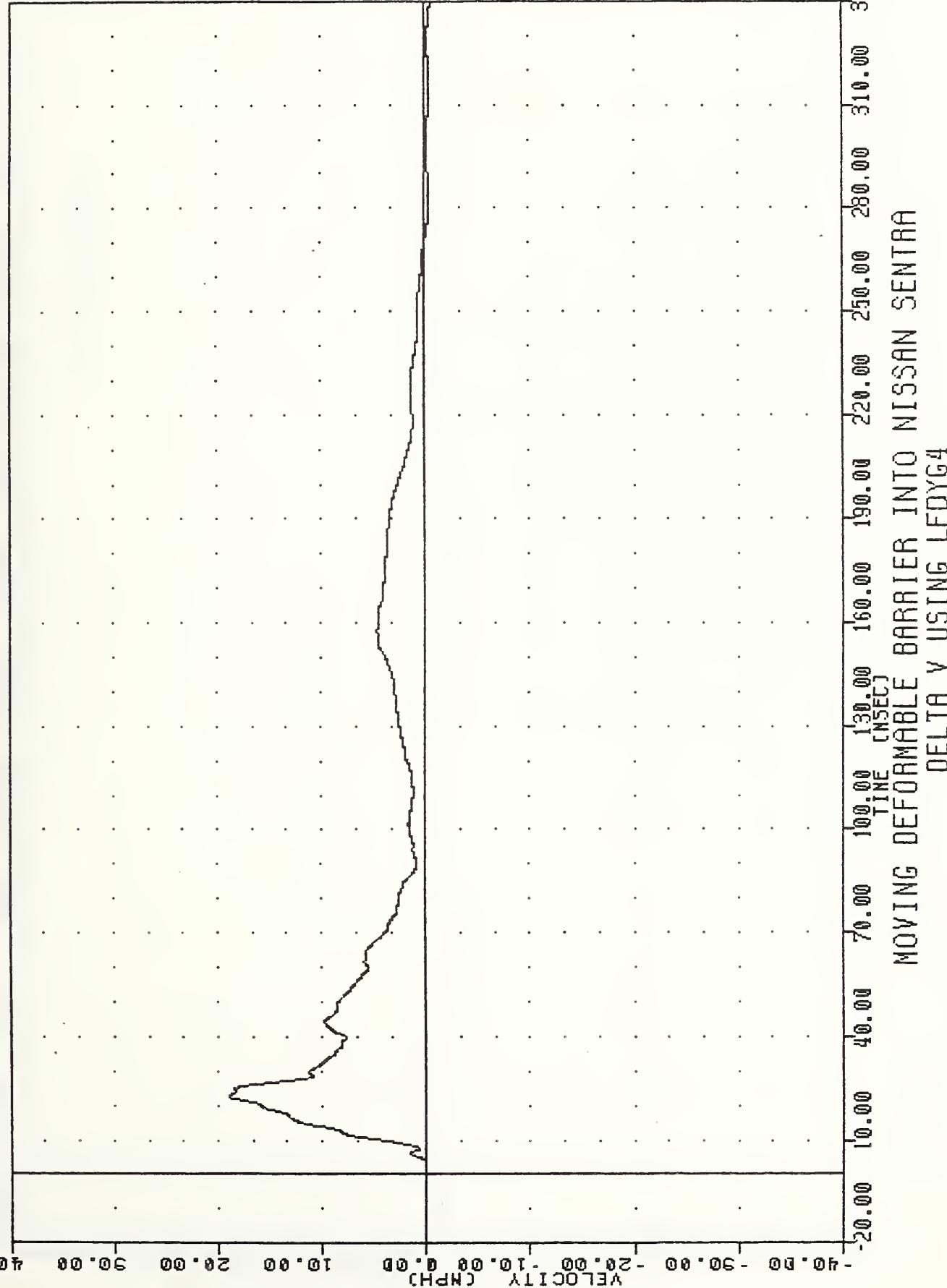
FILTER = BLPP 100/ 316/-40  
MIN. MAX VALUES = -81.19e 30.00 , 75.45 e 14.50



VAT , 850430  
SI PROTECTION PROD YEH  
85120000000  
LFDY4

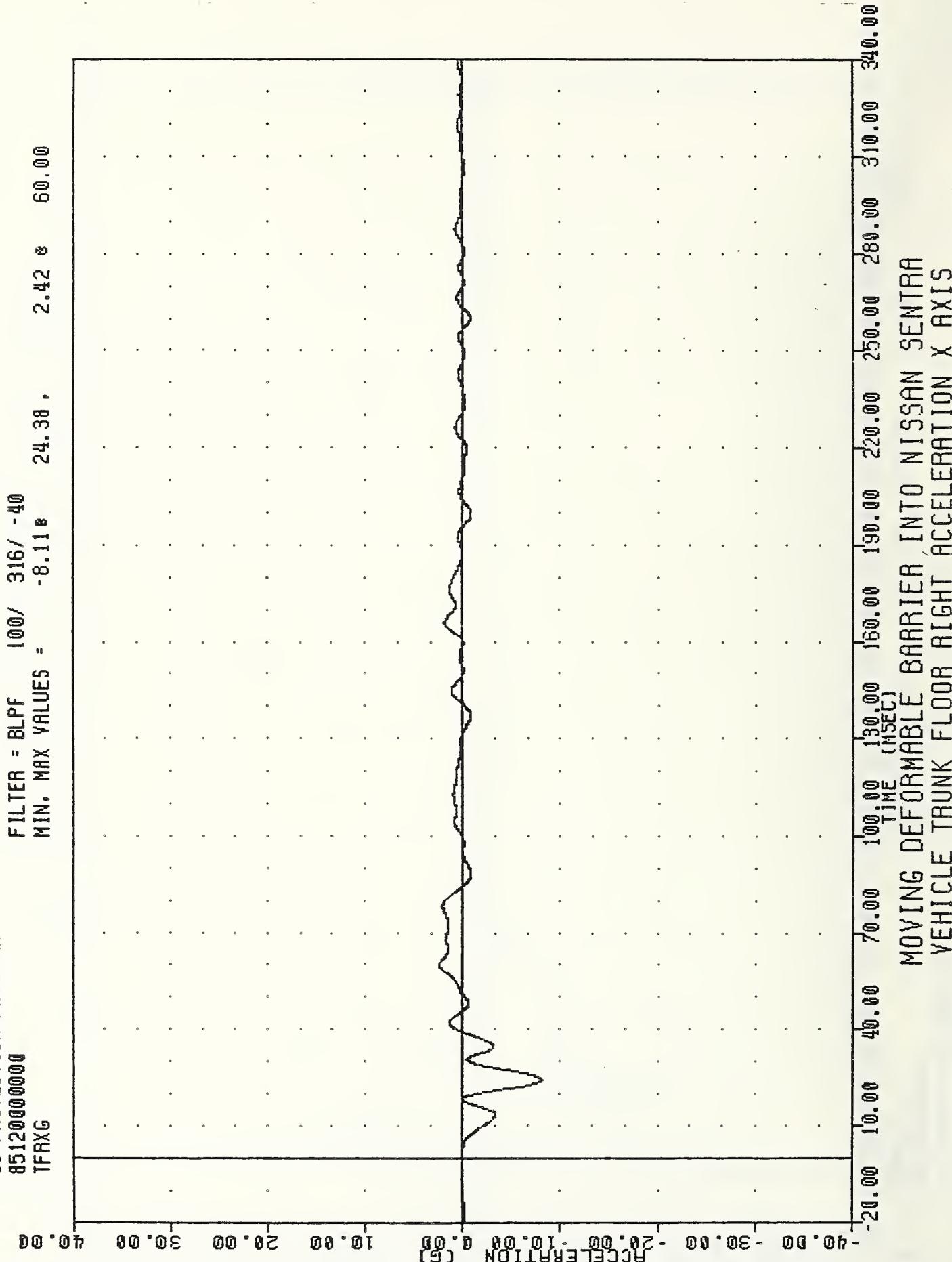
PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/-40  
MIN, MAX VALUES = -0.578 340.00 . 19.01 & 22.63



VAT , 850430  
SI PROTECTION PHRD VEH  
851200000000  
TFRXG

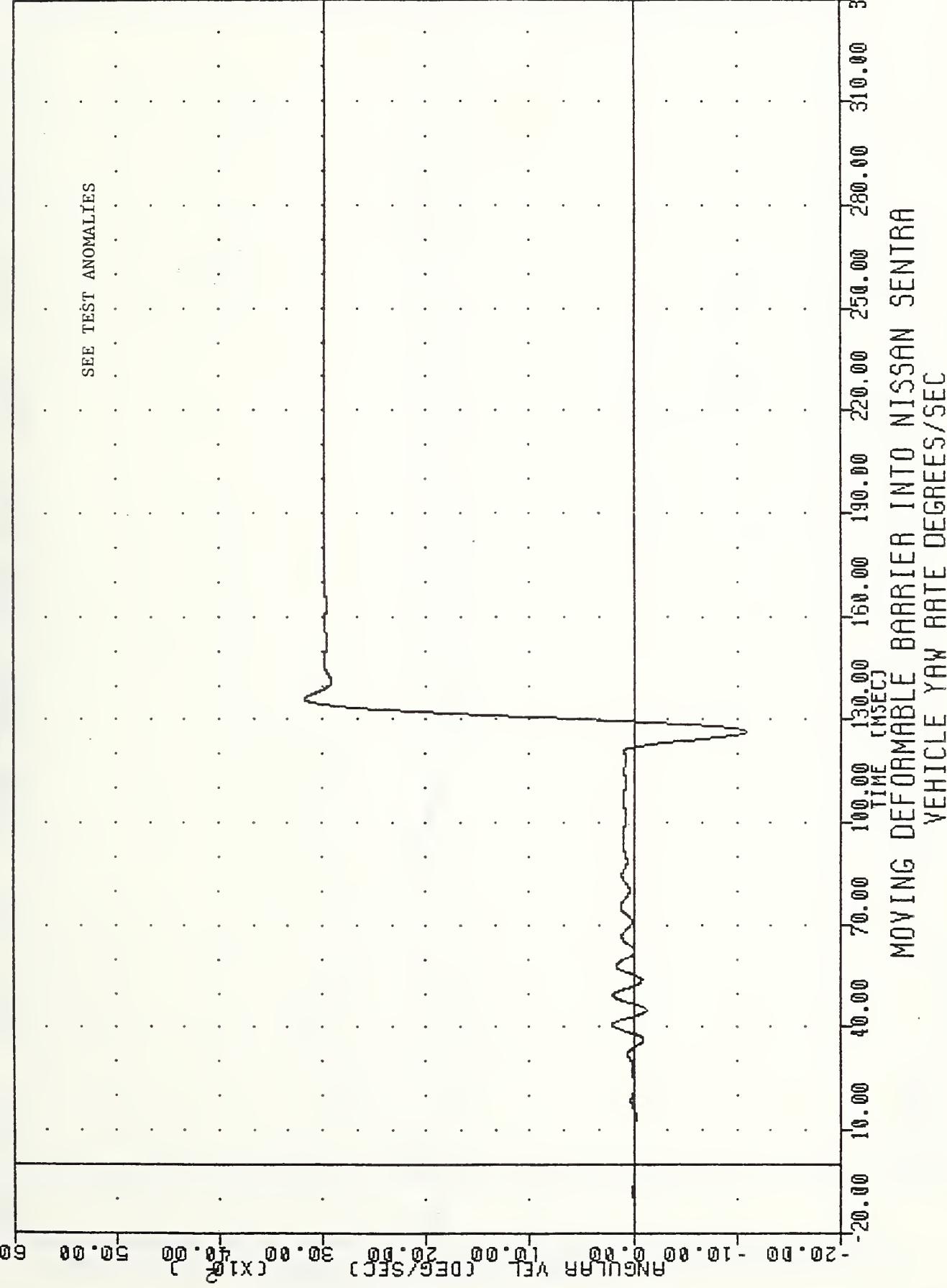
PLOT DATE 9-MAY-85 10:40:19



VRT  
SI PROTECTION PROB VEH  
851200000000  
VCGV

PL01 DATE 9-MAY-85 10:40:19

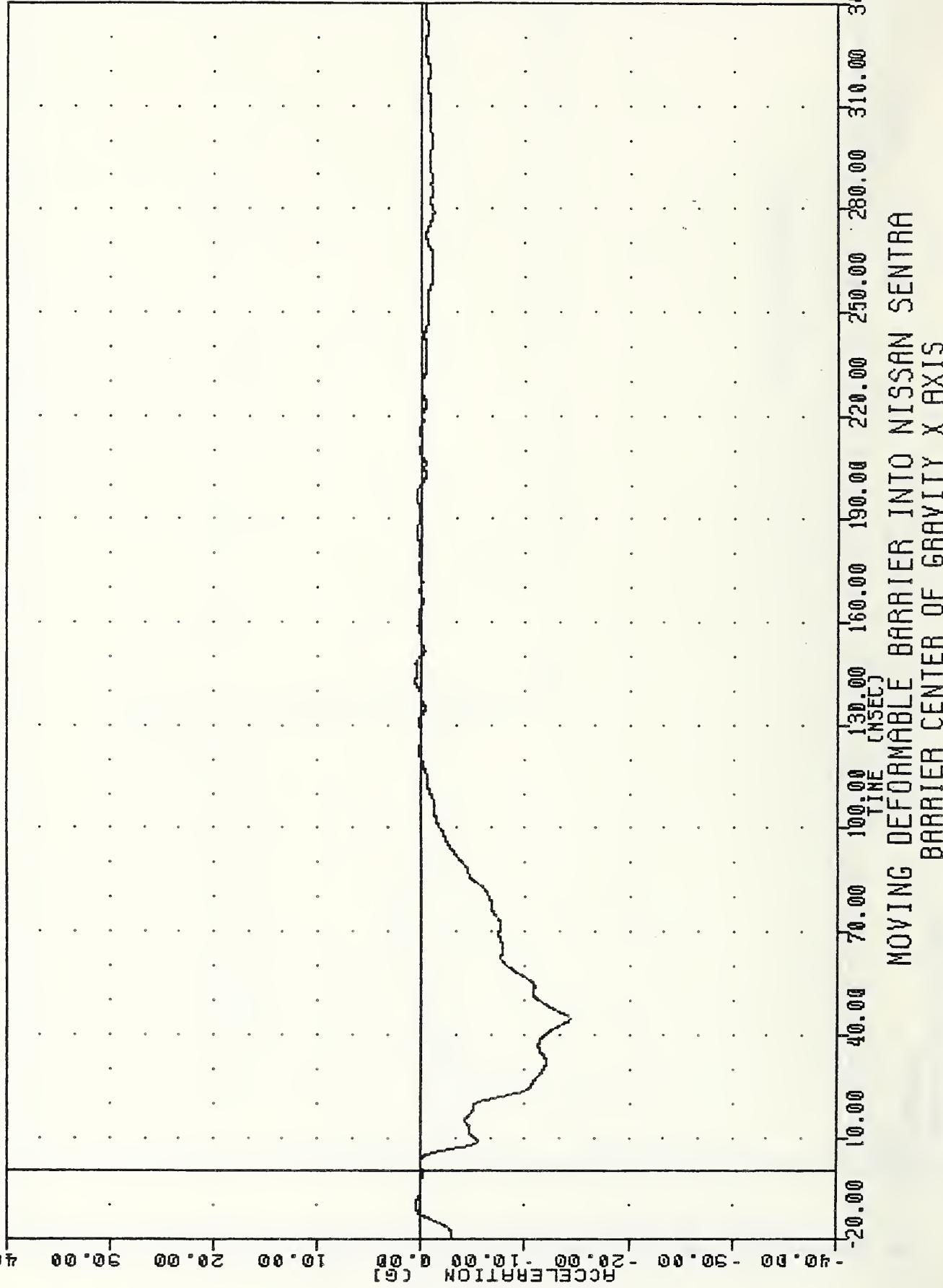
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -1096.19@ 126.50@ 3168.49@ 136.00@



PLOT DATE 9-MAY-85 10:40:19

VAT  
SI PROTECTION PROD YEH  
85120000000  
BCGXB

FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -14.29e 44.75 , 0.64 & 143.00

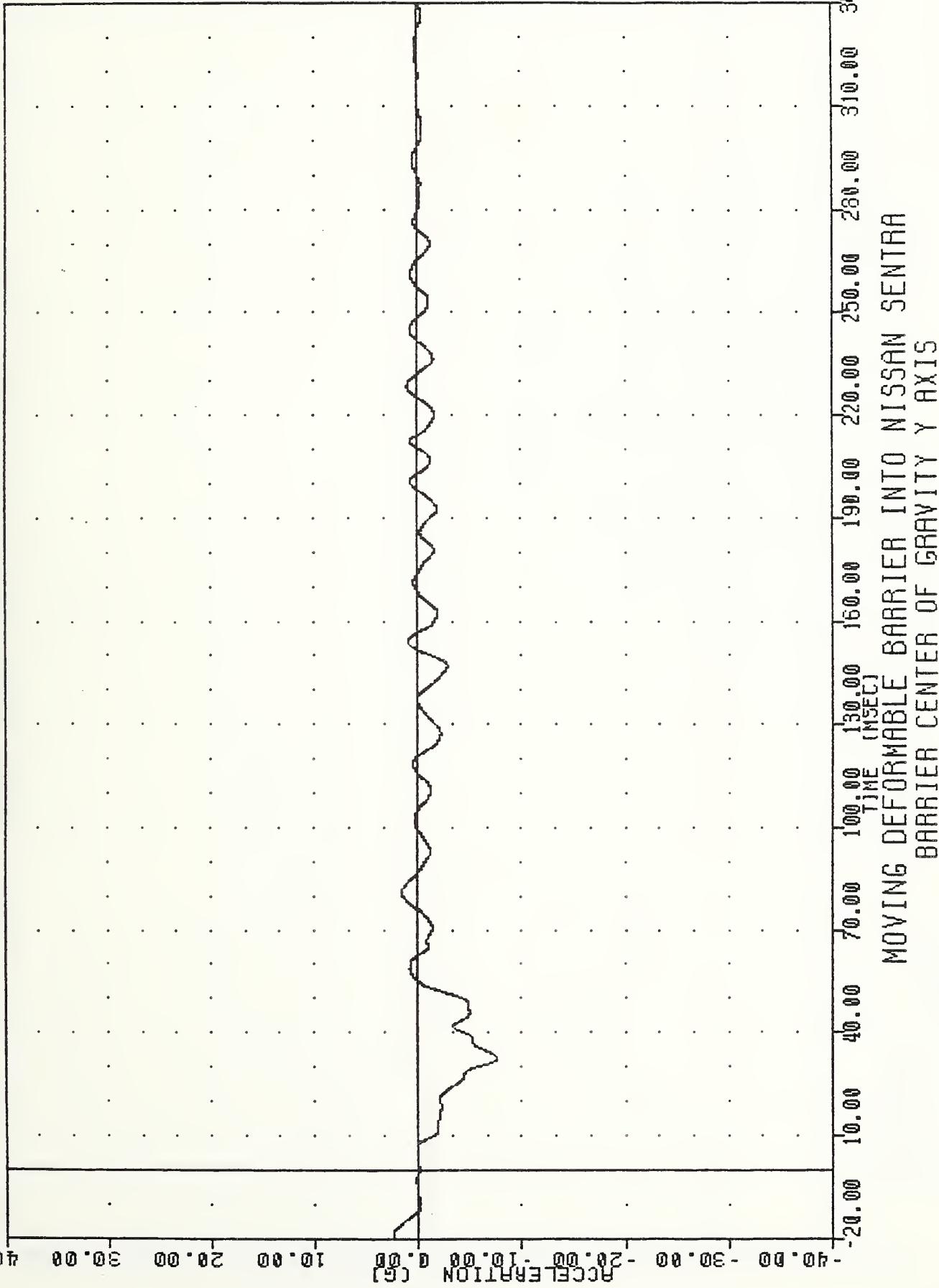


YAT  
SI PROTECTION PROD VEH  
851200000000  
BCGYG

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 100/ 316/-40  
MIN. MAX VALUES = -7.628 32.38

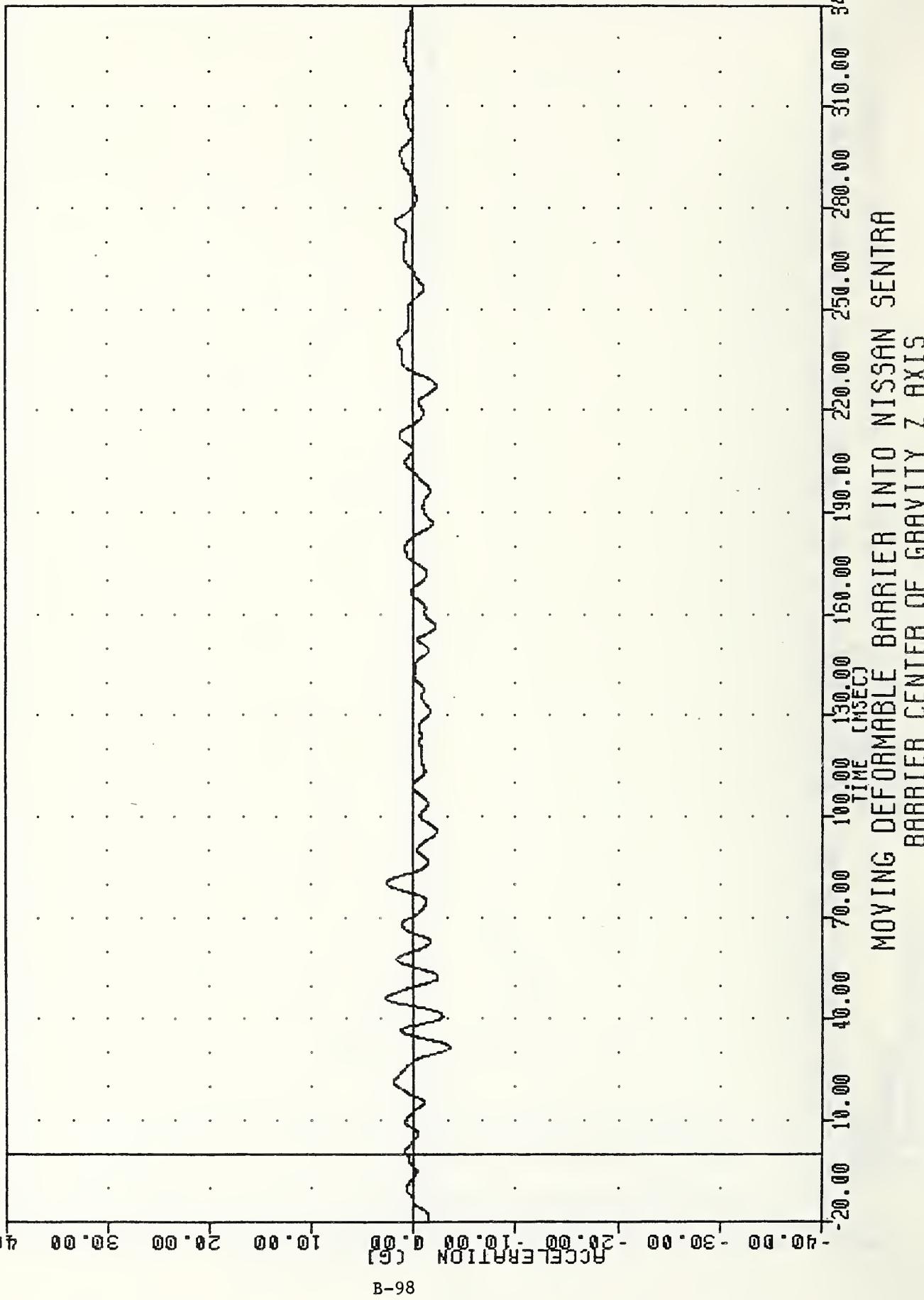
2.38 & -20.00



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
BARRIER CENTER OF GRAVITY Y AXIS

YRT  
SI PROTECTION PROD VEH  
851200000000  
BCGZG

PLOT DATE 9-MAY-85 10:40:19  
FILTER = BLPF 100/ 316/-40  
MIN. MAX VALUES = -3.49@ 31.75 , 2.79 @ 46.25



YRT  
SI PROTECTION PROD VEH  
851200000000  
BCGR6

PLOT DATE 9-MAY-85 10:42:04

FILTER = BLPF 100/ 316/ -40  
MIN, MAX VALUES = 0.098 -6.50 . 15.19 & 45.13

-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00

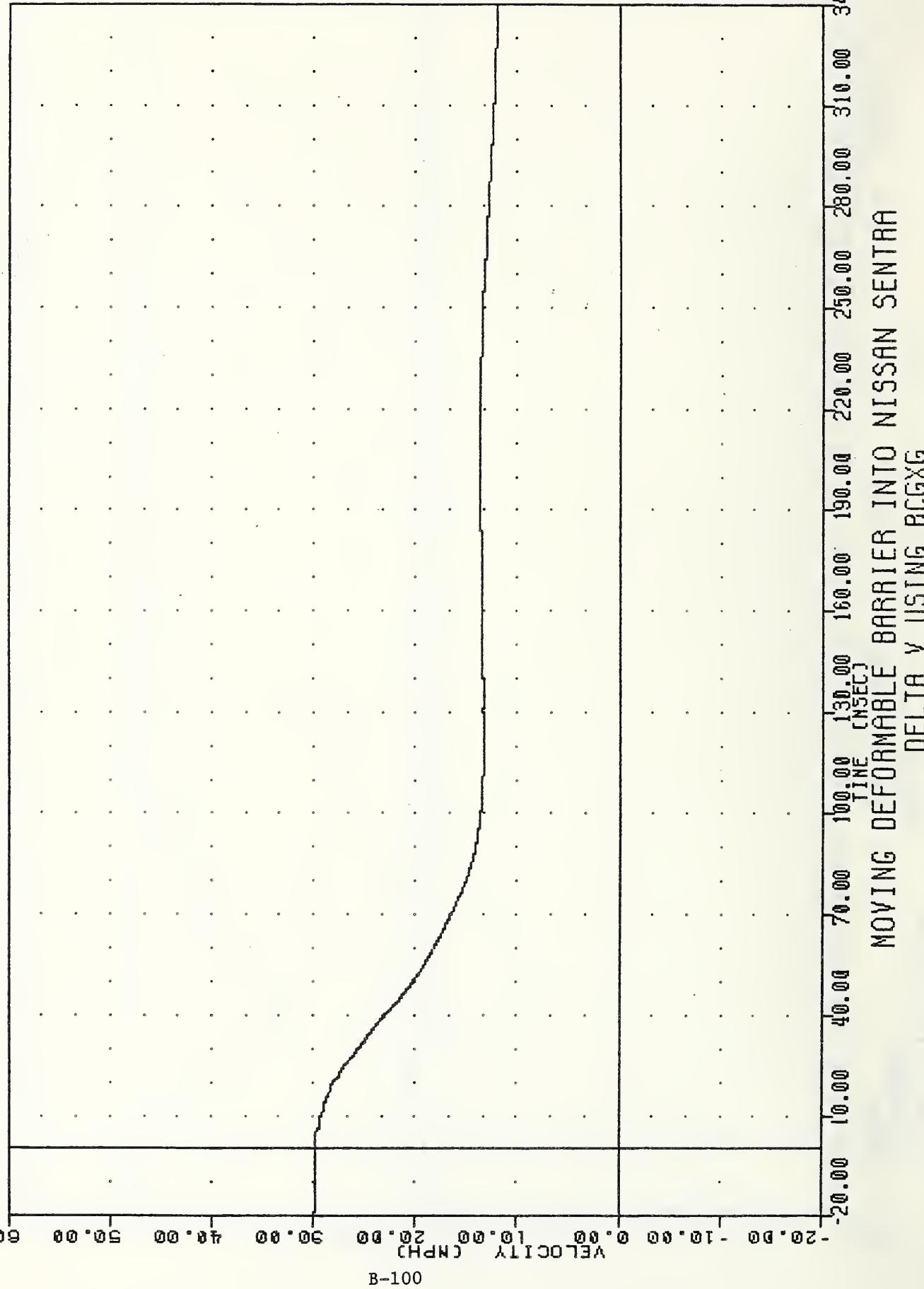
ACCELERATION (G)

TIME (MSEC)  
MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
BARRIER CG RESULTANT

VAT , 850430  
SI PROTECTION PRD YEH  
851200000000  
BCGXY

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/-40  
MIN, MAX VALUES = 11.97 & 339.88 , 30.00 & -20.00

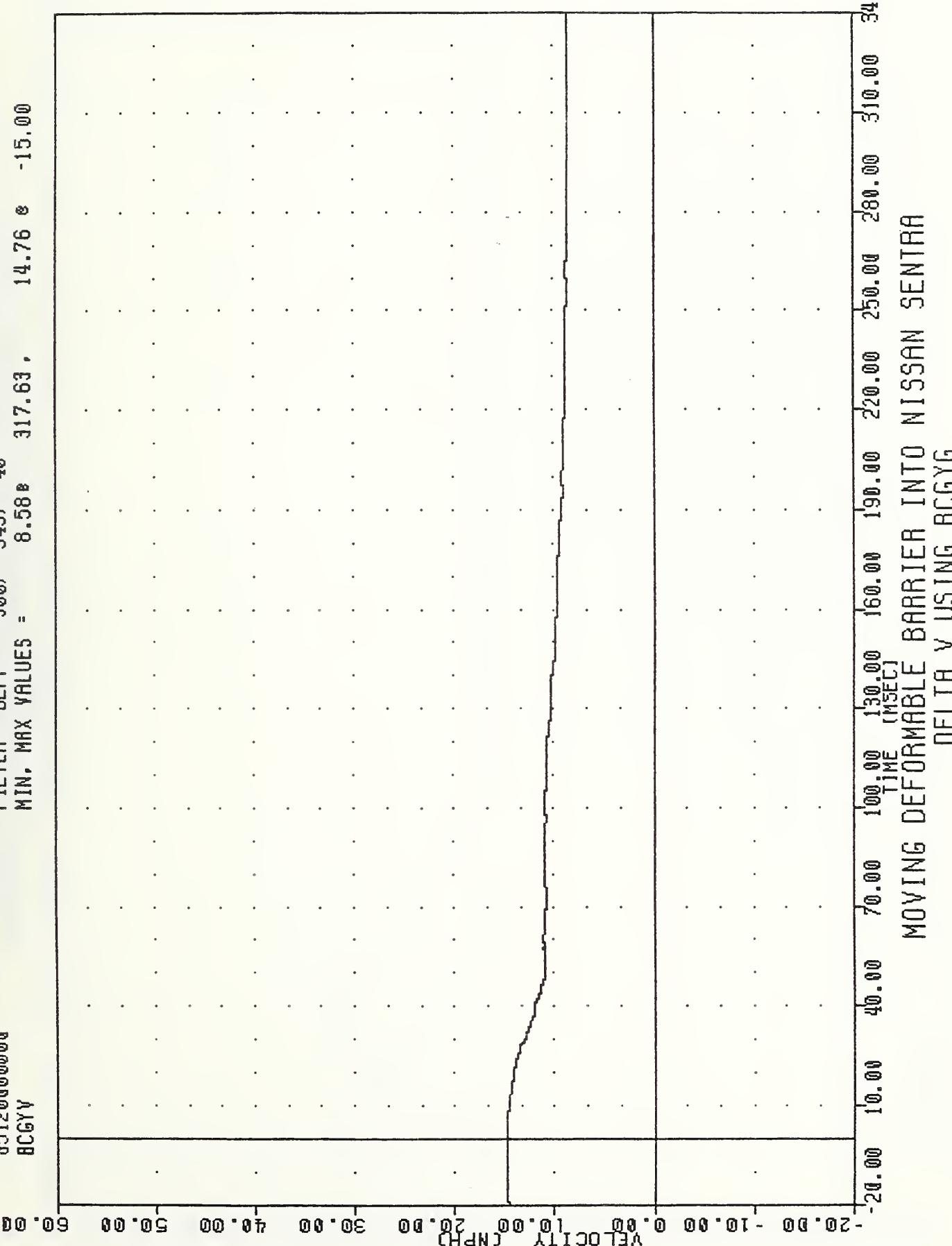


VRT  
SI PROTECTION PROD VEH  
85120000000  
BCGY

PLOT DATE 9-MAY-85 10:40:19

FILTER = BLPF 3000/ 949/-40  
MIN, MAX VALUES = 8.58@ 317.63 , 14.76 @ -15.00

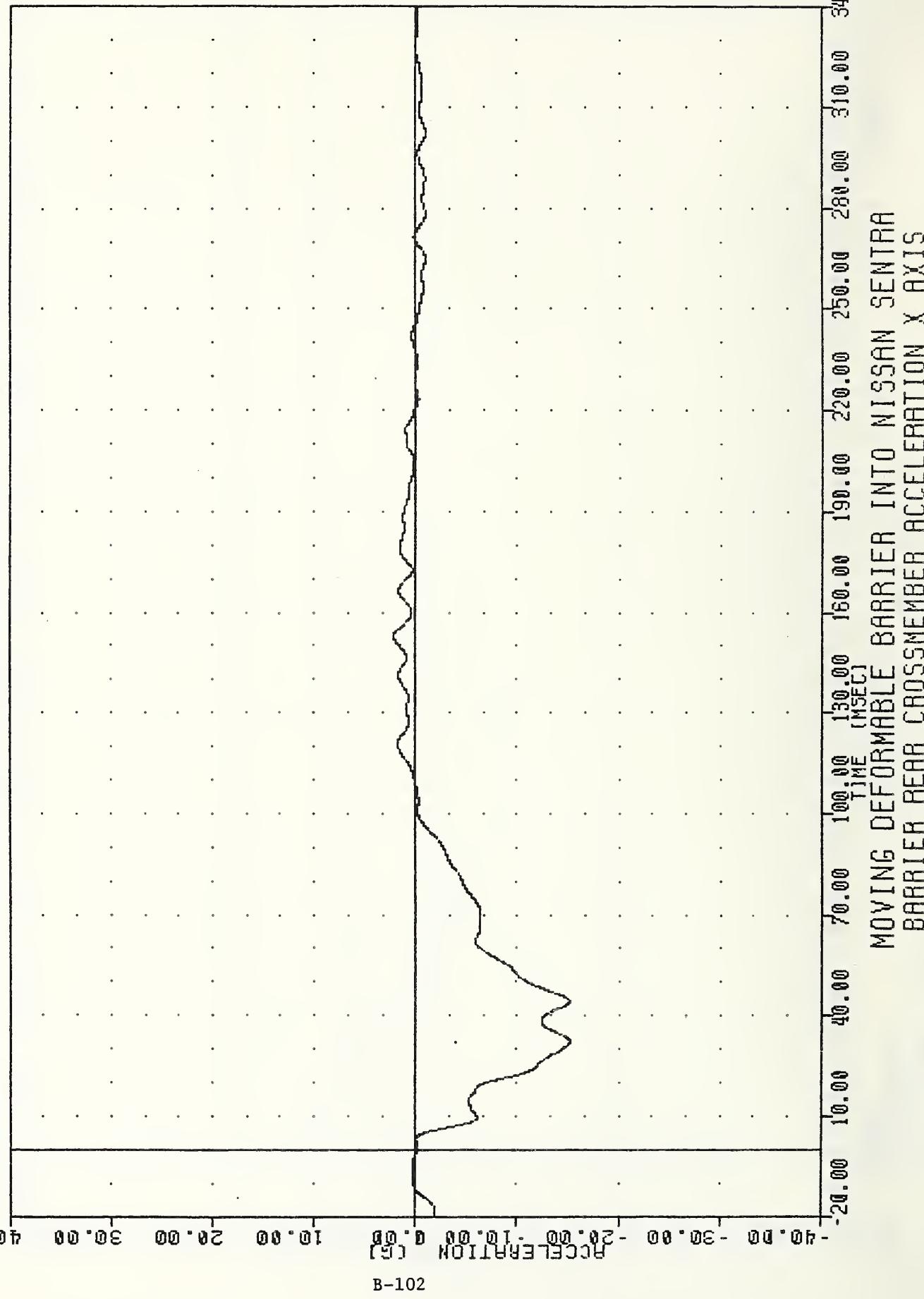
-20.00 10.00 40.00 70.00 100.00 130.00 160.00 190.00 220.00 250.00 280.00 310.00 340.00



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING BCGY

VRT  
SI PROTECTION PROD VEH  
851200000000  
BRCXG

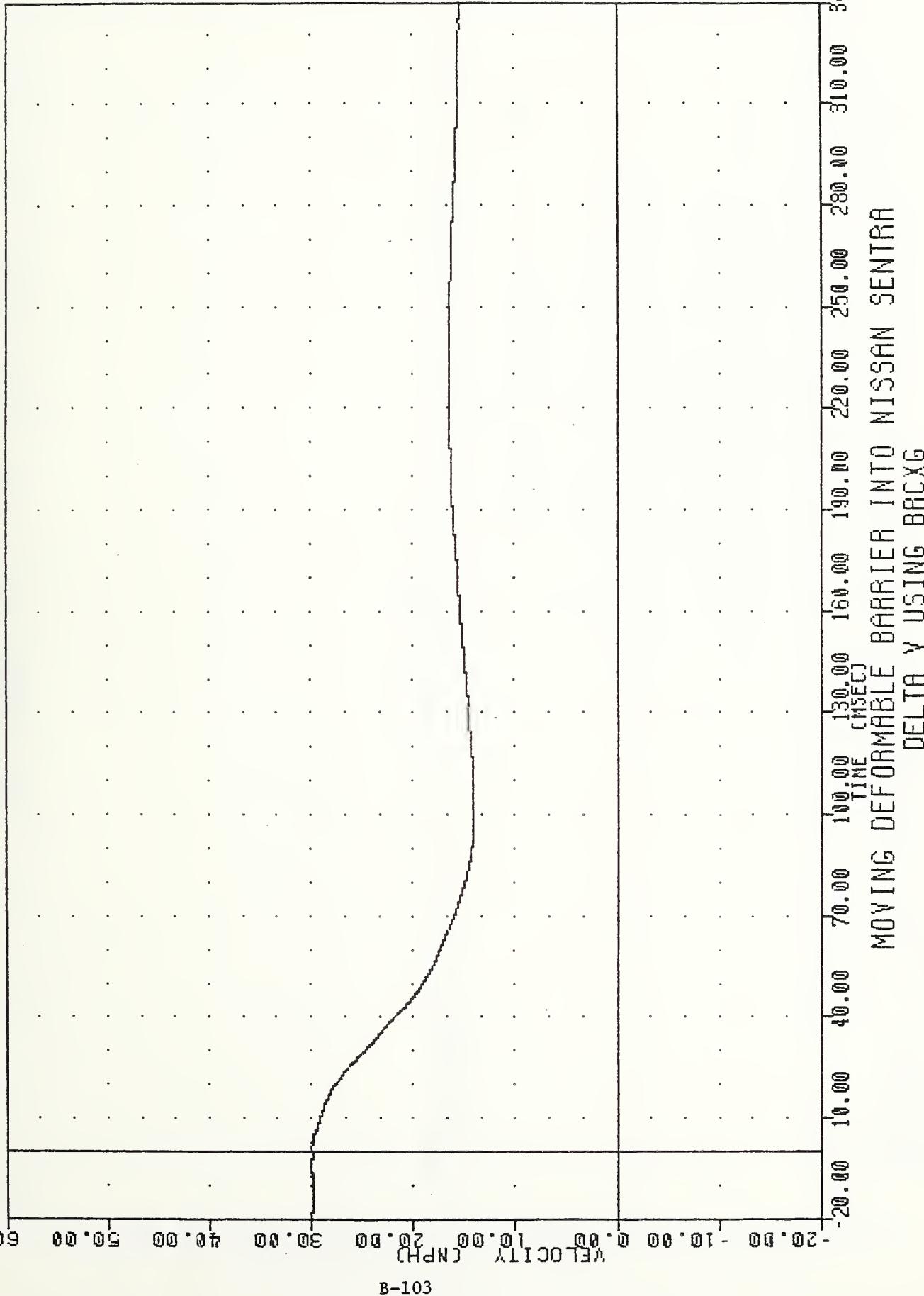
PLOT DATE 9-MAY-85 10:40:19  
FILTER = BLPF 100/ 316/-40  
MIN, MAX VALUES = -15.178 44.25 , 2.18 8 152.88



VRI  
SI PROTECTION PROD VEH  
85120000000  
BRCXV

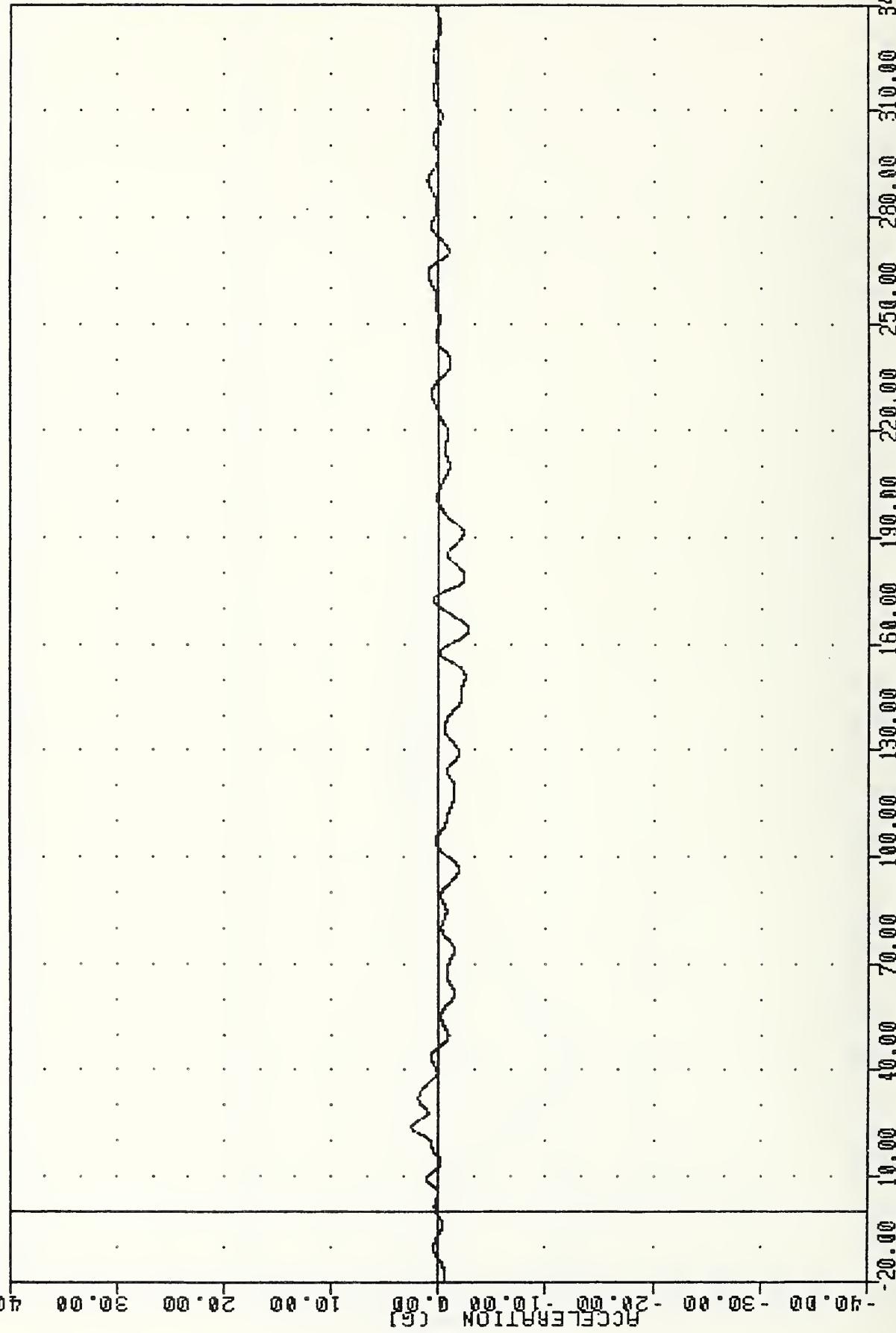
PLT DATE 9-MAY-85 10:40:19

FILTER = BLPF 300/ 949/ -40  
MIN, MAX VALUES = 14.05 & 106.86 , 30.00 & -20.00



四三〇

FILTER = BLPF 100 / 316 / -40  
 MIN. MAX VALUES = -2.74 e 164.13 , 2.55 e 24.00

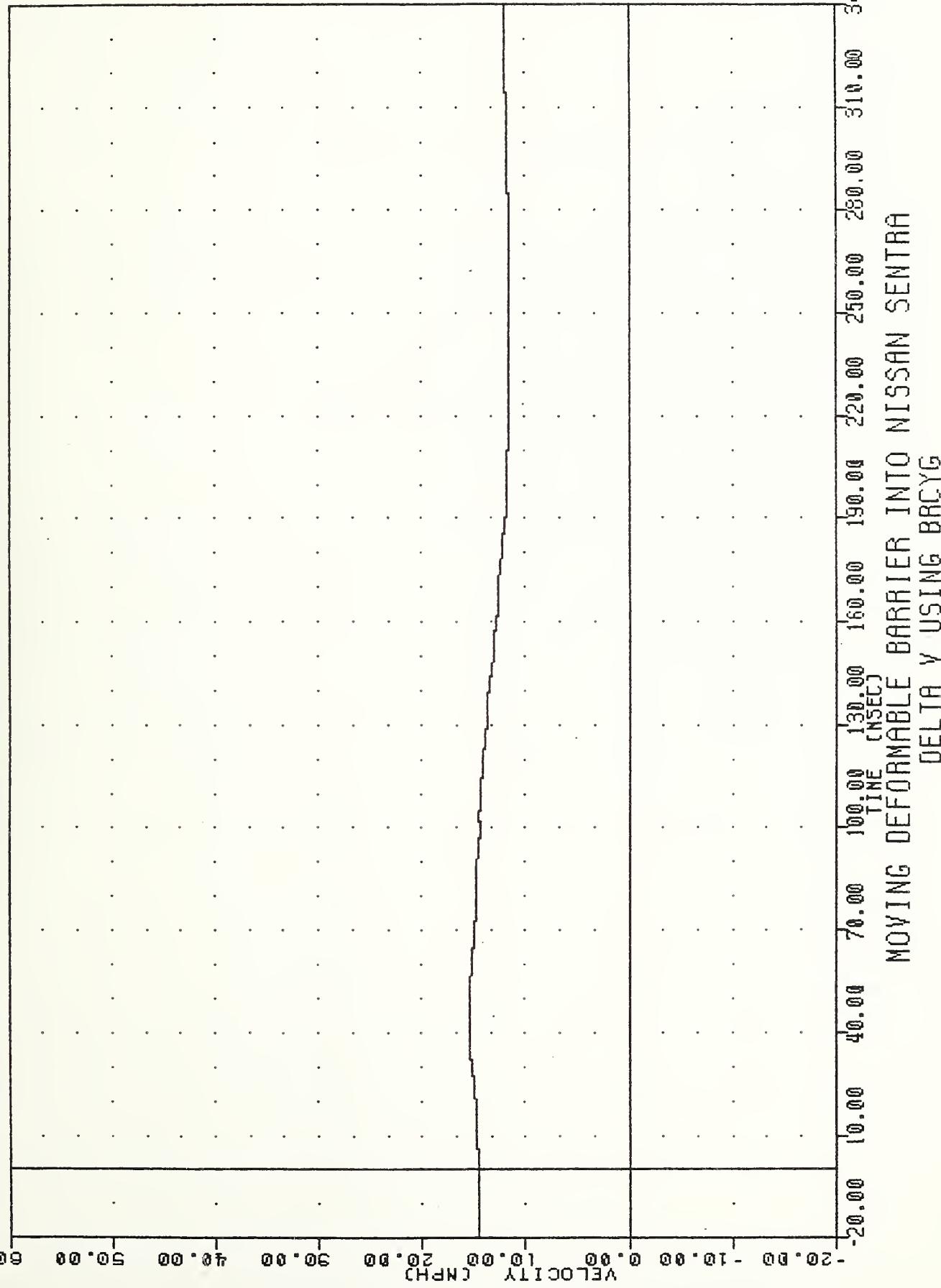


MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
BARRIER REAR CROSSMEMBER ACCCELERATION Y AXIS

VAT , 850430  
SI PROTECTION PROD YEN  
851200000000  
BRCY

PLUT DATE 9-MAY-85 10:40:19

FILTER = BLPP 300/ 949/-40  
MIN, MAX VALUES = 11.47 & 240.50 . 15.44 & 43.75



MOVING DEFORMABLE BARRIER INTO NISSAN SENTRA  
DELTA V USING BRCY



APPENDIX C  
DUMMY CERTIFICATION

SIDE IMPACT DUMMY CALIBRATION  
DUMMY SERIAL NUMBER 123

TEST/ DATE	CHANNEL	FILTER CLASS	PEAK ACCELERATION (g) SPECIFICATION	TEST RESULT
HEAD 4/19/85	HEAD Y-AXIS	1000	150-175	182.54*
THORAX 4/19/85	LEFT UPPER RIB Y-AXIS			
	PRIMARY	180	36-50	37.24
	REDUNDANT	180	36-50	40.08
	UPPER SPINE Y-AXIS			
	PRIMARY	180	16-24.6	23.71
	REDUNDANT	180	16-24.6	23.71
	LOWER SPINE Y-AXIS			
	PRIMARY	180	17.6-26.4	24.70
	REDUNDANT	180	17.6-26.4	24.31
PELVIS 4/19/85	PELVIS Y-AXIS	180	50-65	55.73

\*DUMMY DID NOT MEET SPECIFICATION.

SIDE IMPACT DUMMY CALIBRATION  
DUMMY SERIAL NUMBER U02

TEST/ DATE	CHANNEL	FILTER CLASS	PEAK ACCELERATION (g) SPECIFICATION	TEST RESULT
HEAD 4/19/85	HEAD Y-AXIS	1000	150-175	191.86*
THORAX 4/19/85	LEFT UPPER RIB Y-AXIS			
	PRIMARY	180	36-50	42.11
	REDUNDANT	180	36-50	44.75
	UPPER SPINE Y-AXIS			
	PRIMARY	180	16-24.6	24.23
	REDUNDANT	180	16-24.6	24.32
	LOWER SPINE Y-AXIS			
	PRIMARY	180	17.6-26.4	23.72
	REDUNDANT	180	17.6-26.4	23.70
PELVIS 4/19/85	PELVIS Y-AXIS	180	50-65	93.15*

\*DUMMY DID NOT MEET SPECIFICATION.



10-50-1987

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